AMERICAN GAS JOURNAL

88th YEAR | AUGUST 1946 | VOL. 165 NO. 2

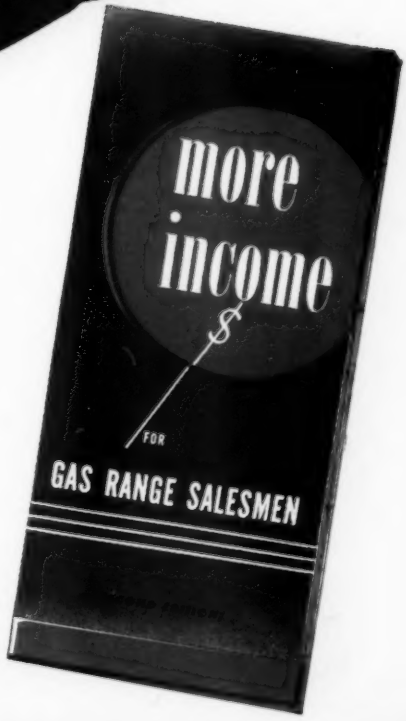
YEARS OF EXPERIENCE ARE CONCENTRATED IN THIS HANDBOOK
BOY! THAT'S JUST THE KIND OF INFORMATION I'VE BEEN LOOKING FOR!
THE LIBRARY OF CONGRESS SERIAL RECORD
AUG 29 1946

EVERY RANGE SALESMAN SHOULD HAVE THIS *Free Handbook*

SALESMEN will find a wealth of valuable material in this free, pocket-size handbook—chock-full of interesting pictures, diagrams and basic information on modern range cooking and how to sell it. Telling the story of "Measured Heat", this book explains the fundamental, scientific principles of roasting, baking, whole meal cooking, etc. Cooking failures are analyzed and remedies suggested.

You can use this handbook as a basis for your sales training program. Write for your free copies today.

FREE—a copy for each of your salesmen. Write for *"More Income for Gas Range Salesmen"* today.



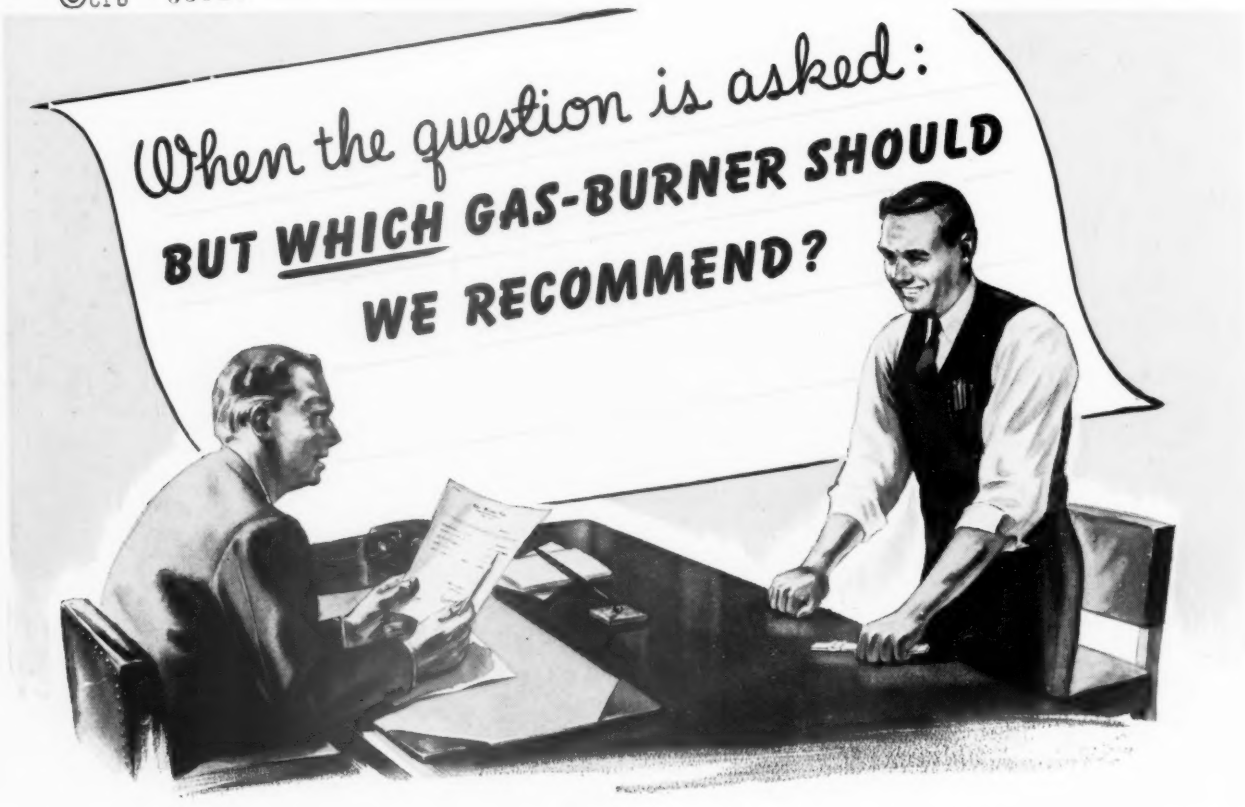
Even More Than Before YOU CAN DEPEND ON

Robertshaw THERMOSTAT COMPANY

YOUNGWOOD, PENNSYLVANIA

AUG 23 1946

©C1B 33920



You can confidently answer: THE GORDON *Spreader-Flame* BURNER

Because:

Roberts-Gordon makes a burner with the patented Gordon SPREADER FLAME, which gives *instant* heat over *every inch* of the furnace walls.

Roberts-Gordon makes a burner with the ingenious Gordon TELESCOPING MIXER, which limits protrusion of the air duct more than 10 inches outside *any* furnace.

Roberts-Gordon makes a burner adaptable to any kind of gas—manufactured, mixed, natural or butane-air—with no change of parts and with only minor adjustments.

Roberts-Gordon makes a burner instantly adaptable to almost every furnace and boiler made—*reducing your inventory needs by at least 80%.*

GORDON

Roberts-Gordon, the pioneers of the gas conversion industry and originator of the spreader-flame principle, builds more units than any other company and makes also the famous "400" gun-type burner.

GAS

ROBERTS-GORDON APPLIANCE CORP., 137 ARTHUR ST., BUFFALO 7, N. Y.

Represented by: *Look in the list for the representative nearest to you.*

Alabama, Birmingham 3
S. C. Bratton
405 Martin Bldg.

Illinois, Chicago 5
Ruud Humphrey Co.
1223 So. Wabash Ave.

Indiana, Indianapolis 4
Brooks Morris
5047 N. Capitol St.

Massachusetts, Boston 16
Herbert H. Skinner
250 Stuart St.

Michigan, Detroit 21
E. C. Lamlein
12768 Grand River Ave.
Phone Hogarth 0154

Missouri, St. Louis 8
Roberts Gas
Appliances, Inc.
9 S. Vandeventer St.

Nebraska, Omaha 11
J. G. Cameron
579 Insurance Bldg.

New York, Metropolitan
John C. Fullerton
292 Madison Ave.
New York 16

New York, Buffalo 13
W. A. Hammond
261 Highland Ave.

New York, Rochester 7
Wm. J. Gillette
196 Chestnut St.

Ohio, Cincinnati 2
F. J. Scull
626 Broadway

Ohio, Westlake
R. E. Landers
3606 Dover Center Rd.

Pennsylvania,
Philadelphia 22
Porter Hurd
1500 N. 8th St.

Pennsylvania, Pittsburgh 19
Ridge Appliance Co.
1505 Berger Bldg.

Texas, Dallas 5
E. H. Durning Company
2nd Unit
Santa Fe Bldg.

Utah, Salt Lake City
W. L. Peterson
733 East 3450 South St.

Wisconsin, Milwaukee 3
J. H. Fagan
161 W. Wisconsin St.

CONTINUOUS TAR DEHYDRATION

...by Sharples

"The greatest contribution to the tar industry which has been made during the past 20 years." This is the statement from a leading tar products engineer who has studied the Sharples Continuous Process.

The Sharples Process is complete . . . continuous centrifugal dehydration of water gas or coke-oven tar to 2% or less of moisture . . . settling tanks or steam stills entirely eliminated.

There is a Sharples Engineer to assist you in solving your tar dehydration problem.

THE SHARPLES CORPORATION

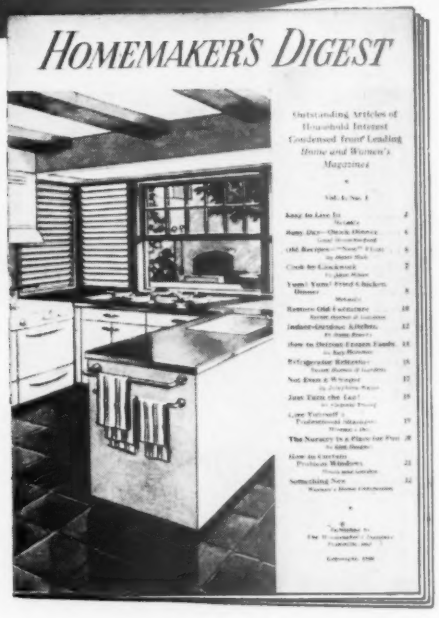
Centrifugal and Process Engineers

NEW YORK 17, N. Y.	CHICAGO 4, ILL.	BOSTON 16, MASS.	SAN FRANCISCO 5, CALIF.	CLEVELAND 15, OHIO
501 Fifth Avenue	80 E. Jackson Boulevard	230 Congress Street	686 Howard Street	453 Hippodrome Annex Bldg.

EXECUTIVE OFFICES AND FACTORY, 2300 WESTMORELAND STREET, PHILADELPHIA 40, PENNA.

AMERICAN GAS JOURNAL, August, 1946. Vol. 165, No. 2. Published monthly by American Gas Journal, Inc., at 34 North Crystal St., East Stroudsburg, Pa., Executive and Editorial offices at 53 Park Place, New York 7, N. Y. Entered as second-class matter October 7, 1928, at the post office at East Stroudsburg, Pa., under the Act of March 3, 1879. Printed in U.S.A.

JUST OFF THE PRESS!



The great new third issue of HOMEMAKER'S DIGEST

See how this popular Gas Industry promotion wins good-will ...dramatizes the modernity of Gas and Gas Service

WITH each succeeding issue, Servel's exciting Homemaker's Digest continues to climb to new heights of popularity. The first issue brought a wave of enthusiastic response. The entire press run of the second issue—more than 1,000,000 copies—was completely sold out. Now the great third issue is ready to promote the modernity, efficiency and economy of Gas and Gas Appliances to every woman in your community.

In the eye-appealing pages of this sparkling third issue are condensations of articles written and chosen by the editors of McCALL'S, GOOD HOUSEKEEPING, BETTER HOMES AND GARDENS, WOMAN'S DAY, HOUSE AND GARDEN and WOMAN'S HOME COMPANION. These outstanding articles feature time-saving homemaking tips, tempting recipes and hints on food care that housewives will want to read and use.

Also highlighting the great third issue of Homemaker's Digest are specially written editorial stories. They dramatize the superiority of Gas Refrigeration, Gas Cooking and Gas Water Heating...give homemakers new, practical ways to benefit from their work-saving Gas Appliances.

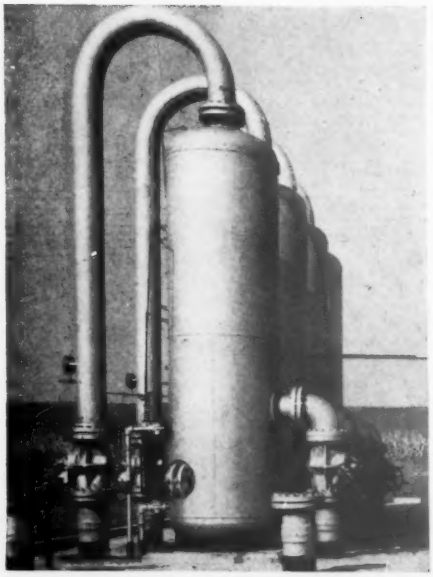
Be sure to order enough copies of Homemaker's Digest for every name on your meter list. Send this full-color, "digest" magazine to all your customers. Then watch how this popular Gas Industry promotion wins a host of new friends for modern, economical Gas and Gas Service. For complete information on the Homemaker's Digest, write today to Servel, Inc., Evansville 20, Indiana.

Busy day—
Quick Dinner
How to Curtain "Problem" Windows
How to Restore Old Furniture
Yum! Yum! Fried Chicken Dinner!
OUTSTANDING ARTICLES CONDENSED FROM AMERICA'S LEADING WOMEN'S MAGAZINES

How to defrost frozen foods
You can have an Indoor-Outdoor Kitchen
Clean and cool as all outdoors—this New Freedom gas kitchen
Not even a Whisper!
Just turn the tap!
SPECIALLY WRITTEN STORIES ON THE LATEST GAS APPLIANCES
Serwel, Inc.
EVANSVILLE 20, INDIANA

CLEAN GAS

promotes sales of gas appliances



Seven Blaw-Knox plants have been awarded the Army-Navy "E", and have regularly received renewal stars for continued high achievement in the production of war materiel.

Clean gas reduces service interruptions, eliminates service complaints. Clean gas builds consumer confidence and increases sales of new appliances. Blaw-Knox Gas Cleaners make satisfied customers.

What Blaw-Knox Gas Cleaners have done for other gas companies they can do for you. Send for these records and for Catalogue 1869.

BLAW-KNOX DIVISION of Blaw-Knox Company

2070 Farmers Bank Bldg., Pittsburgh 22, Pa.

New York • Chicago • Philadelphia • Birmingham • Washington

BLAW-KNOX GAS CLEANERS

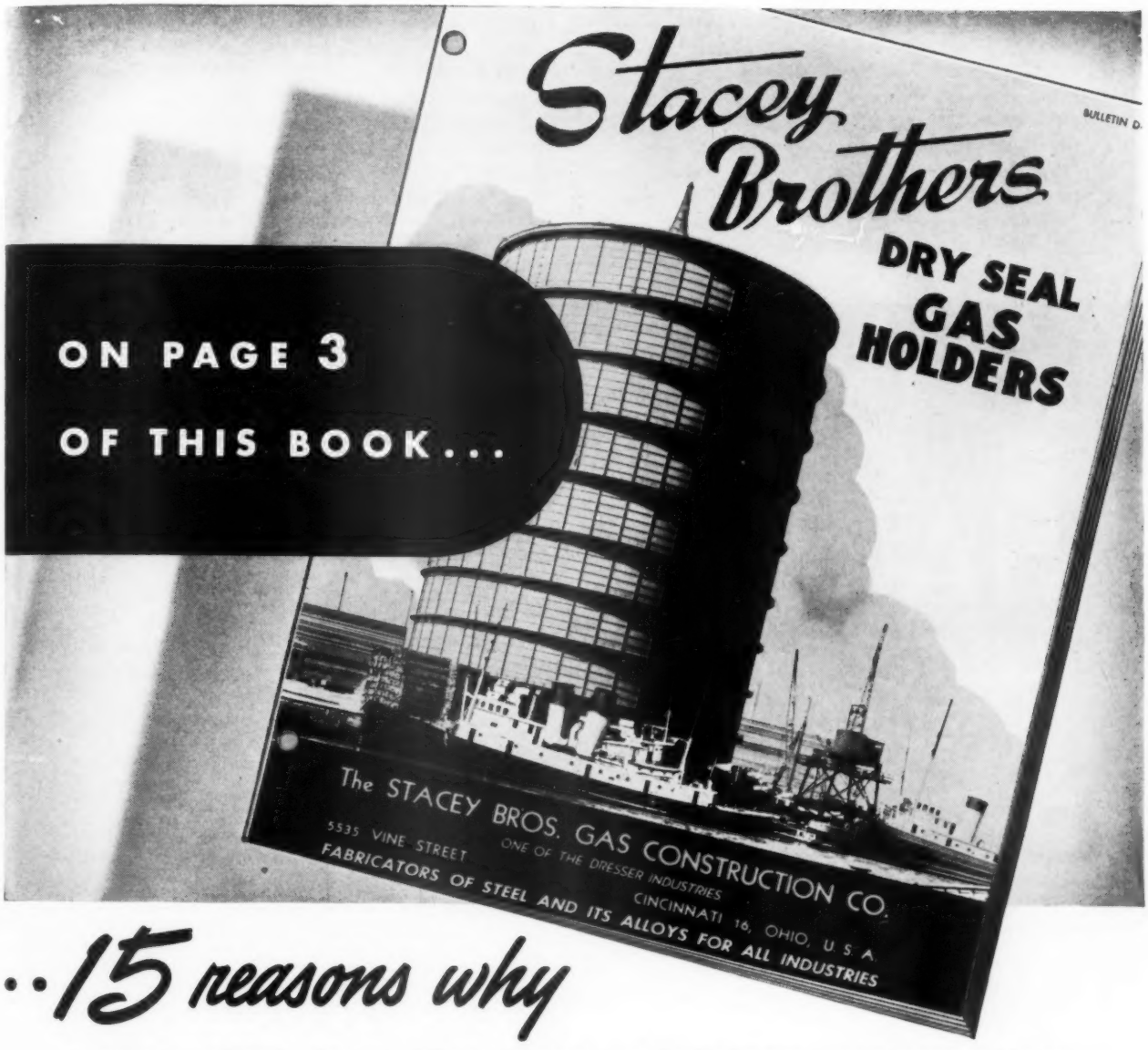
Also—DESIGNERS, MANUFACTURERS AND ERECTORS OF:

Compressor Stations

Absorption and Stripping Plants for removal of Naphthalene, Gums, Tar, Light Oils from Manufactured Gas

Propane-Air Plants

INQUIRIES ARE INVITED


Stacey Brothers
DRY SEAL GAS HOLDERS
BULLETIN D-
ON PAGE 3
OF THIS BOOK...
The STACEY BROS. GAS CONSTRUCTION CO.
ONE OF THE DRESSER INDUSTRIES
5535 VINE STREET
CINCINNATI 16, OHIO, U.S.A.
FABRICATORS OF STEEL AND ITS ALLOYS FOR ALL INDUSTRIES

..15 reasons why

YOU'LL SAVE ON INSTALLATION, OPERATION, MAINTENANCE WITH STACEY-KLONNE TYPE DRY SEAL GAS HOLDERS...

This 32-page book tells the complete construction and operation story of dry seal gas holders, including four pages of valuable engineering data and tables. From detailed drawings and close-up illustrations you'll find why operators are turning to Stacey-Klonne Dry Seal Holders for economical, trouble-free storage capacity.

During the 14 years since we first introduced Stacey-Klonne Holders in this country, we've built them as small as 30,000 cu. ft.—and as large as 10,000,000 cu. ft. You can benefit by this pioneering experience. Whether you operate holders now—or plan building them in the future, you'll want this book. Write us on your company letterhead for your copy. Ask for Bulletin D-46.

THE STACEY BROS. GAS CONSTRUCTION CO.
One of the Dresser Industries
5535 VINE STREET • CINCINNATI 16, OHIO

Stacey Brothers
ALL-WELDED GAS HOLDERS

Thousands of housewives are waiting to buy new, modern gas ranges. They have the desire, and the means, to buy the *best.* Our consumer advertising program is telling these women that ranges equipped with the Harper Center Simmer Burner are definitely superior... that the Harper "2 burners in 1" top burner saves up to 39% on gas, keeps kitchens up to 9 degrees cooler, saves hours of kitchen pot-watching weekly, and makes possible many other advantages symbolized by the Harper seal.

You can *demonstrate* these advantages to your customers. There is no surer way to close sales on higher-priced ranges . . . to augment the position of gas as the ideal cooking fuel through promoting appliance improvements that give better cooking results. Scores of helpful pointers on how to demonstrate effectively are contained in our booklet "How to Sell More Gas Ranges." Copies are available for your staff—FREE. Simply address: Harper-Wyman Company, 8562 Vincennes Avenue, Chicago 20, Illinois.

Before Buying Your
NEW RANGE
make sure it has the famous
HARPER CENTER SIMMER BURNERS
Look Inside for the booklet with this seal
The Harper Center Simmer Burners are superior to ordinary top burners because each Harper burner is really 2 burners in 1. As shown in diagram, the big outer burner brings foods to a quick boil. Turn handle until it "clicks" and the big burner goes out, leaving only the small, efficient inner burner lit to finish the cooking.
Only the separate Harper Center Simmer gives you the controlled low heats you need to keep foods warm for serving . . to eliminate pot watching and boiling dry . . to allow cooking with little water, which saves time and gas and keeps the average kitchen 9 degrees cooler. Only the Harper separate Center Simmer can help you so much in your cooking.
Insist on Harper Burners!
•18 Leading Gas Ranges are Harper Equipped
2 BURNERS IN 1
BOTH BURNERS ON
CLICK OUTER BURNER TURNS OFF INNER BURNER STAYS LIT
HARPER-WYMAN COMPANY, CHICAGO 20

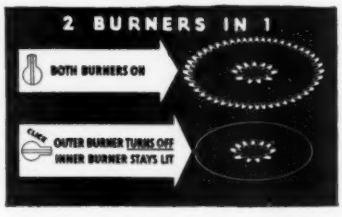
OVER 21,500,000 READERS!

Advertisements like the one shown here appear in the following publications, having a combined monthly readership of more than 21,500,000 women:

Ladies' Home Journal
McCall's
American Home
Better Homes & Gardens
Woman's Home Companion

Tie-in with this consumer advertising... *demonstrate* and talk the advantages of the Harper Center Simmer Burner when these women come in to *buy!*

The Harper Center Simmer Burner operates on the unique principle of "2 burners in 1"... a STARTING BURNER for frying and to start foods boiling, plus a small, economical COOKING BURNER, to maintain the cooking... both controlled by the same handle. It is subject to finer gradations of low heats—greater control and economy—than any other top burner made.



HARPER CENTER SIMMER BURNER *"...Holds the Lines for Gas"*

HARPER CENTER SIMMER

VOLUME 165
NUMBER 2

AMERICAN GAS JOURNAL

ESTABLISHED 1859

WHOLE
NUMBER 3870

AUGUST 1946

PUBLISHED MONTHLY BY
AMERICAN GAS JOURNAL, Inc.
53 Park Place, New York 7

S. G. KRAKE, *President and Treasurer*

M. E. KELLEHER, *Secretary*

S. G. KRAKE, *Managing Editor*

H. T. MATTHEW, *Business Manager*

JAMES C. MUNN, *Midwest Representative*
10515 Wilbur Ave., Cleveland 6, Ohio
Tel. Sweetbrier 0052

SCOTT KINGWILL, *Western Representative*
35 E. Wacker Drive, Chicago 1, Ill.
Tel. State 4227

Copyright, 1946, American Gas Journal, Inc.

Subscription $2.00 per year U.S.A.; $3.00 Canada; $4.00 Foreign. Single copies, 25 cts.

CONTENTS

Industrial Relations—Louis Ruthenburg 11

Selecting and Training Gas Air Conditioning Application Engineers—G. E. May 15

School of American Cookery at Portland Gas & Coke Co. 17

Equilibrium of Water Vapor Content of Compressed Gases—E. G. Hammerschmidt 21

Pipe Line Construction Recently Authorized by F. P. C. 23

Manufactured Gas for the Future—W. E. Steinwedell 25

California Extension of Texas Transmission Line Now in Progress—Fred A. Herr 28

Large Volume Water Heating—Chapter V Part 2—Malcolm B. Mackay 31

Unusual Law Suits—Leo T. Parker 34

Range Demonstrations for Dealers 37

Gas Burning Furnace Ordinance Adopted in Los Angeles 38

New Equipment & Appliances 40

News of the Gas Industry 42

IN LABORATORY TESTING of gases every detail of AMERICAN wet test meters from gage glass to water line marker and chromium plated pointer insures not only more precise reading . . . quickly . . . but insures continued accuracy of operation for many years. • Greater facility of adjustment is provided. • The metals and materials employed throughout afford maximum protection against corrosion. • Bulletin AG3 describes the up-to-date features in detail, and gives complete data on capacities and applications of the various sizes. It will be mailed you on request. • These instruments are made by the originators and perfecters of wet test meters in the United States.

2205

AMERICAN METER COMPANY
INCORPORATED ESTABLISHED 1836

Albany • Baltimore • Birmingham • Boston • Chicago
Dallas • Erie • Houston • Kansas City • Los Angeles • New York • Philadelphia • Pittsburgh • San Francisco • Tulsa

AUGUST
1946

AMERICAN
GAS JOURNAL

VOLUME 165
No. 2

Industrial Relations

By
Louis Ruthenburg
President Servel, Incorporated

***The author's timely portrayal of this comprehensive subject sets forth in broad concept some underlying factors which served to throttle rapid reconversion. His recommendations in the matter of National Economy and his analysis of the relation of subsidies to inflation are well worthy of careful consideration. And his comment on legislative controls is both pointed and potent.*—ED.**

HAVING devoted a considerable number of hours out of a "misspent" life to participate in Trade Association activities, I should be very stupid indeed if I had not acquired some ability to appraise the value of speeches made before such meetings. And, I say to you without reservation, and utmost sincerity, that I have never heard a president's address delivered before a trade association that was such a masterpiece of constructive statesmanship as the address delivered to you yesterday morning by Lyle Harvey. I mention that to you because I feel that I can do no better this morning in discussing briefly with you some of the facts and fallacies of industrial relations, than to underscore and elaborate on several of the many constructive suggestions that Mr. Harvey made to us.

Human Relationships

The first of them emphasized the fundamental importance of human relationships. The second impressed upon us the need for keeping a clear perspective—sweeping aside the superficial and confusing elements that confound us today, and deal with basic truths. As to the first of these, I suppose there is no more general fault in human nature than to confuse cause and effect, and to place the cart before the horse. We become so preoccupied with our technical problems of engineering, research, production, sales, accounting —that we are inclined to lose sight of the fact that all of the products of these activities are in the final analysis nothing more or less than the products of human cooperation. It would be well if we devoted more of our thinking and energy to that fundamental—than to the more superficial elements of our businesses —in the proper study of mankind as man.

As to the second of these suggestions, President Truman has said, "This is a year of decision." Be that as it may, it obviously is a year of confusion. And that confusion is compounded by a great deal of double talking. If any of you are philosophically inclined—and I know many of you are—I commend to you a reading of the "Legene of the Tower of Babel," because I believe that that prophecy deals very directly with many of the problems that confront us today. Some time ago, I had a conversation with an official of the O.P.A., and I told him exactly what I thought about decisions based upon political expediency. These men are under instructions to treat the representatives of industry kindly and not to become involved in altercations with them. The next day he said to a friend of mine, "This man Ruthenburg is a reactionary."

Basic Beliefs

Now I am not inclined to pay much attention to people who resort to name calling when they can't answer otherwise, but I did take myself rather severely to task. I carefully and critically examined some of my basic beliefs. I found that I had always believed in simple arithmetic—two and two invariably add up to four. I found that I adhered

to the principle enunciated in the Sermon on the Mount, in which is included the Golden Rule. I found that I believed in the validity of the Constitution of the United States, in which the Bill of Rights is an integral and important part. Now the time was when such beliefs entitled a man to be called a liberal. In these days of double talk, apparently such beliefs stigmatize him as a reactionary. Those who have stolen and profaned the name of "liberty" have demonstrated conclusively that they do not believe in arithmetic. Otherwise, we should not hear that double talk about fantastic wage increases in the presence of unincreased prices.

They talk about the Golden Rule and the Bill of Rights. Now, the ancient definition of a *Liberal* was one who attempted to preserve the people from the tyranny of kings and demagogues and bureaucrats. Our modern so-called liberals are those who would increase the areas of government control and tyranny. And, so, this is certainly an age of confusion.

As I talk to you today, I am going to try to uncover, not anything of great complexity, but a few simple truths in which we must adhere if we are to retain our perspective. I do not need to emphasize to this group the fact that we have attained in the United States of America the highest material living standard ever achieved in the world's history. Nor do I need to spell out for your benefit the corollary fact that we have achieved a wider distribution of these benefits than has ever been achieved throughout the world's history at any time, under any type of government.

Attune Material Gifts

I think it is well to refresh our memories as to how we can apply these great material blessings. It is not the result of accident; it is not solely the result of great natural resources. It certainly cannot be attributed to any individual reasons. These benefits stem from a philosophy of government that was painfully achieved by the founders of this Republic. Our forefathers freed this nation from restrictive influences and set up compelling incentives for a full flowering of individual freedom. An ingenious people living under that environment and responsive to these incentives invented a tremendous flock of useful things, and invented very interesting techniques which constantly increase the production of those desirable things. The formula is not a complicated one. It is very generally understood.

That process was accomplished by increasing investments, because investors were guarded in their rights. Now the result of that formula is very interesting. I have before me the tabulation which covers certain statistics over a 90-year period. These disclosed that from 1849 until 1909, the investment per plant in the United States increased from $4,000 to $70,000. And in the succeeding 30 years from 1909 to 1939, there was a tremendous growth in investments from $70,000 per plant to $270,000 per plant. The investment per worker increased in the first 60 years of this period from $500 per worker to $3,000 per worker. And it again doubled in the next succeeding 30 years.

The horsepower per worker at the beginning of this period was too small to be measured. By 1939, it had increased to 6.4 horsepower per employed worker. That is all the more significant when you recall the fact that the average human being develops of his own strength one-eighth of one horsepower. The year's output in dollar value went from $485, to $1,310. The average annual wage increased from $248 to $1,158.

Incentives Hampered

There, briefly, is the process and the record by which we have achieved this enviable material living standard. But, during recent years, retrogressive forces have been at work and many factors which have led to this result have been vitiated. Incentives have been destroyed, and very notably, the incentive which prompted investors to supply necessary capital to industry has been destroyed. How long we can proceed in that process of destructive action is anybody's guess.

I am, and always have been, and always will be a believer in rapidly increasing real wages. They have been a most constructive force in the process of bringing about high material living standards. But, real wages can be increased only in the presence of increasing productivity and efficiency. Today, we do not have that. Money wages increased in the presence of declining productive efficiency will lead to a declining real wage, and to destruction, and diminution of our living standards. That is simple arithmetic. That is the situation that confronts us today. Recently inflated wages, I am afraid, will be a cruel illusion. They will represent merely an increase in the money wage in the presence of declining productive efficiency.

Economic Trends

Now any discussion of the facts and fallacies of industry relationships must take into account current and future economic trends. And that leads us to define my terms so I shall not be regarded as an alarmist. Inflation, of course, is a matter of degree. When I talk about inflation I am not talking in terms of a wild, insane, runaway inflation that characterized Germany after the First World War. Inflation is a good deal like the rise of the Ohio River that occasionally affects our town of Evansville. That river can rise tremendously without bringing about disastrous results. We think nothing of a river which rises from nine feet (which is the controlled level) to a level of 40 or even 45 feet. It is only when it gets beyond 50 feet that Evansville begins to get alarmed.

Now, modern inflation, in terms of cutting the dollar buying power in half, is not alarming; not necessarily disastrous. I don't intend to forecast what the reduction in the dollar's buying power will be, but some such inflationary result has followed every major war in which this country has been engaged. The general economic pattern that followed the War of 1812 is strikingly similar to the general economic pattern which followed World War I. After these hostilities had stopped, there was a decline in the dollar's buying power that lasted for two or three years. Then, eventually came the reaction—a deflationary period. That was followed, after a period of adjustment, by a period of normal business.

The National Debt

Although V-J Day is only a few months behind us, that same pattern is very apparent today. There are two factors, however, that must be taken into account which did not occur in earlier wars. We have reached a much higher national debt, and we have a degree of political meddling with the economy which never characterized any other post-war period. Those two influences may be very significant. I am a little surprised that we don't hear more discussion of this national debt of ours. It is the most fantastic debt ever incurred

the world's history. It may be that our national debt now exceeds our total national appraisable wealth. And when you take into account the great reduction of our natural resources never to be regained, the loss of farm lands, the loss of mineral wells, and when you take into account the lives that have been lost or rendered useless—the magnitude of our debt is beyond human comprehension.

We hear a great deal about full employment, and about a post-war boom. But, how much have you heard about how we are going to control this most fantastic debt of all times? We are going to pay that debt in one form or another. The choice of that coin in which we shall pay that debt is very simple. We shall pay that debt either in terms of enormously increased productive efficiency, or in terms of a drastically reduced standard of living. There is no other choice. Now, that being the case, what are our public servants doing about it?

The answer is that they are playing politics in their efforts to retain the support of the C.I.O. There are a few exceptions, and those men who have resisted that tendency deserve a great deal more praise from us than they are getting, because their courage and patriotism is of a very high order. Generally speaking, political tendency is not in the direction of reasonable control of our economic waywardness. Now, this debt, of course, has been brought about by tremendous borrowings which have been monetized—bank funds, or in simple terms, the dictionary definition of the inflation says, simply "a sudden increase in money."

That is what we have got. Today, we have, in terms of expendable money and bank credit something in excess of $175,000,000,000, compares with $65,000,000,000 in 1939. That isn't hay. That is inflation according to the dictionary definition. Now, what do we need to do to realize that we have to control this inflationary force? You don't need any high powered economist to give you the answer. Every person who paid off the mortgage on his place knows what we ought to do.

National Economy

Here is the recipe. It is not infallible, but it is inevitable. First, we must reduce governmental expenditures. Second, we must balance the budget. Third, we should revise our very confused tax laws, but we must keep taxes high. And finally, we must all work harder than we ever worked before. Now I realize that sounds like Churchill's formula of "blood, sweat, and tears." But, I remind you that history is full of the tombstones of nations that attempted other courses.

Unfortunately, we are living in an atmosphere of political expediency, which is unrealistic in relation to our tremendous fiscal problems. As true as any generality is this: "That a sound economic program is not compatible with political expediency." I said that many of our public servants are playing politics in their efforts to retain the support of the C.I.O. The C.I.O., according to abundant evidence, is Communistically controlled. And, I think we should be reminded that the history of recent years indicates very clearly that subversive elements find their opportunity under confused economic conditions. There is a fatal sequence—economic disturbance, social maladjustment, political upheaval.

Subsidies and Inflation

That is what we must guard against as well as we may. Yesterday something was said from this platform about subsidies. Subsidies used in an effort to suppress prices is one of the surest methods of inviting the worst penalties of inflation. According to a recent editorial in the New York Times, our food subsidies alone now amount annually to $1,575,000,000. That same editorial went on to say that the total subsidies probably amount to something over $2,000,000,000. The writer reminded his readers that our perspective is so distorted today that $2,000,000,000 may not be impressive until we remind ourselves that $2,000,000,000 was more than half our total Federal expenditures in the year 1929.

Now, those figures do not take into account the $400,000,000 that are involved in the Wyatt Housing Program. Yesterday, it was explained how those subsidies are to be spent. There, again, I believe, is represented ignorance as to the economics of production. These subsidies are proposed to be paid to manufacturers to increase their production beyond their normal output. Every manufacturer who has ever read a profit and loss statement in relation to the volume of production, knows that he needs help less after he has achieved his plant normal output than he needed it before that. There is an old saying in the railway industry that, "The profits are in the scrap," which means that the profits come from the final overload placed upon the plant.

Why devise subsidies to be paid to manufacturers for extra production in which their profits lie? Our public servants apparently do not believe in arithmetic. Now, these circumstances are not to be taken as an excuse for abdication of management. They are simply a challenge to management to do something about it. I wonder how many of the people here have a close, cordial relationship with their senators and representatives? If you haven't, you better establish it, and maintain it. I have found that these men are most appreciative of sound adive, if it can be spelled out to give them the information they need in order to frame and support, or defeat pending legislation. We owe then that, rather than blind, stupid criticism.

There are a great many things that management can do in this important area of industrial relations. And, as George pointed out yesterday, our industrial relations are simply the internal aspect of public relationships. On two of these problems we should certainly apply every effective technique we have learned in the areas of salesmanship, advertising, and promotion—because our whole success in those fields depends upon selling—not things—but ideas. These techniques have been proven in areas of industrial and public relationships.

Avoiding Turnover

May I briefly cite two or three case records? During World War I, a firm with which I was associated in Dayton, Ohio, had the usual problem of keeping down, or replacing labor turnover. It suddenly dawned upon that management they could be much more effective in meeting that problem if they encouraged their present employees to stay there where they were, rather than spending a lot of money to find replacements, who generally were ineffective, or weeks after they were hired usually left and again had to be replaced. That firm called in its advertising agency and said, "We want you to engage in a campaign within this plant to sell our people on the advantages of staying where they are." "Encourage their inertia."

Fortunately, that agency had as its chief executive officer a man of

vision who could sell an idea, and whose selling ability was not confined to selling things. He brought in his staff and went at that just as would in any merchandising campaign. All the available media were examined. A careful study was made of all the appeals that could be used —both printed and spoken word. A campaign was started which included every effective poster, a complete revision of the factory paper with this end in view, moving pictures at a noon-day show, postcards taken to their homes by the workmen, and so on. That is exactly what you would plan in selling a product; using the media and appeal. It was most effective. The results were remarkable.

That plant wound up its participation in the war effort with the lowest turnover in its history. In spite of the fact that other plants in the community were paying twice the wages of the plant I described, the employees remained there.

Experience at Evansville

Case number two has to do with the community effort of the city of Evansville. In 1937, a group of industrial managers got together and decided to tell their story to the public of Evansville, in the face of terrific propaganda being put out through Government agencies and the unions. I don't know what results were directly traceable to that campaign, but I do know this. Evansville, in spite of the fantastic increase from a top level of 24,000 employees to 65,000 — had not a single stoppage during the war effort due to labor disputes! It can be done. The methods and techniques are available to us.

Legislative Controls

Now, much is being said these days about legislative remedies. Most of us do not realize how small an area of human activities can be controlled in a republic by legislation. The area really is very small. There is a legend in Indiana about a proposed bill which had for its purpose changing the "accepted" relation between the diameter and perimeter of the circle, from the ratio of 3.1416 to an even 3. Those Hoosier legislators were too smart to try to monkey with an eternal truth, so they didn't pass the bill. It would have stopped a lot of figuring of course. But some of the legislation now enacted, and some of the legislation now proposed, is no more silly than that.

We simply don't recognize the areas controlled by legislation. We have had plenty of case records, prohibition, for example. I don't want to overemphasize the legislative aspect of this problem. However, something must be done. I don't think anyone should take the President's veto of the Case Bill too seriously. It was a very superficial piece of legislation. It will not be effective until we go back and correct the fundamental violation of a principle. Now, every school boy in the United States knows that the foundation upon which this republic was built is the theory of equality under the law. And from that principle, we have departed. That principle was subjected to violence for a long period of years, so no legislation can be effective. Collective bargaining will be a mockery until we have corrected that fault. Today, we don't have collective bargaining. We have collective coercion and shotgun bargaining. It can't be otherwise under the legislative foundations that have been corrupted. Before we can have any collective legislation, before we can have any collective bargaining, before we can have law enforcement, we must again reestablish equality under the law. And that can be done very quickly if enough people say so, by this simple program.

First, revise the Wagner Act. Retain every equitable right of labor for collective bargaining, but offset every penalty for which the employer can be held responsible, by an equally weighted responsibility for labor. The Wagner Act is unAmerican class legislation as it now stands.

Special Privilege

The second step which will be taken just as soon as an aroused public opinion requires our legislators to be responsible to the public good, instead of the wishes of a minority, will be the removal of special privileges and immunity that labor now enjoys under laws enacted, and under court decisions. Today, less than 10% of the population and less than 25% of those gainfully employed in the United States are immune from laws affecting monopoly and riotus assembly. I am quoting from Donald Richberg, who is a friend of labor. These immunities must be removed by proper legislation. Organized labor must be subject to all of the laws that control other groups in these United States—not excepting laws having to do with monopoly, taxation, and all others that affect our corporations.

Having swept away the rubble, and reestablished moral values and the foundation of equity, we can (and only then) have corrective collective legislation—a sound body of legislation. The ultimate solution lies not in legislation, as it is, but in education and mutual understanding. Failing in this, we probably shall have statism and dictatorship in this country—not so much the result of crackpots and their doings—as the result of that fatal sequence of economic maladjustment, social disorder, and political upheavals. It is later than we think.

Presented at the Annual Meeting, Gas Appliance Manufacturers Assn., Chicago, June 11-12, 1946.

Selecting and Training Gas Air Conditioning Application Engineers

By

G. E. May

New Orleans Public Service Inc.
New Orleans, La.

THE PURPOSE of this paper is twofold:

1. To point out and qualify a a new problem of the gas industry.
2. To offer helpful suggestions for its solution.

The problem can be described in three sentences:

1. The gas industry is justly interested in a program of development and promotion of gas all year air conditioning equipment.
2. Such a program requires trained and experienced men especially application engineers.
3. Only a few are now available.

In order to formulate a satisfactory solution to this problem, it should be properly qualified. A problem well stated is often half solved.

1. Utilities Responsible for Pioneering Work

The pioneering effort behind the introduction of a new appliance has, by precedent, fallen to the Utility. In operation with the manufacturer and a prospective dealer, the promotional work is carried out until a market has been developed, capable of supporting one or more dealers.

Gas all year air conditioning is an attractive load. In most cases, it can be added to the Gas Utility distribution system without additional capital investment, and brings plus revenue with improved load factor. So, the Gas Utility is justified in making an investment introducing this type of load in the area it serves.

2. Organization Requirements

Gas air conditioning, like many industrial gas applications, is not a package item that can be sold and delivered over the counter. It must be carefully sold, engineered and serviced. And, like many industrial applications, it is such a specialized field as to attract the single interest of many consulting engineers.

Indeed, the application engineer is the key man in such a program because he controls the success with which the equipment is applied and the spring board of customer satisfaction from which other sales effort will be launched. He bears a heavy responsibility. He must be well acquainted with sales and service problems so that his designs are practical. He must be a skilled air conditioning engineer so that his designs are correct. The selection and training of this man prompts this study.

Other Utilities which have pioneered gas air conditioning during the past six years agree that the minimum personnel requirements to operate a program are as follows:

	Installations per year			
Department	*50*	*100*	*200*	*300*
Salesmen (Closers)	2	3	5	6
Application Engineers	1	2	4	5
Draftsmen	1	2	4	6
Servicemen	1	2	4	5

3. Technical Limitations of Existing Personnel

Since this work is often foreign to even the industrial gas engineers, it is evident that the existing personnel seriously lacks the technical background required to handle application engineering for air conditioning. This will be more evident as the qualifications of these men are later discussed. The most promising existing source of personnel is among those engineers, who have had some executive experience, and the industrial gas engineers. But, in either case they would require specific training in air conditioning technology.

4. Qualifications of Application Engineers

An examination of the duties of the application engineer will aid in a better understanding of his qualifications. He would, very likely, serve as a department head with the following responsibilities:

1. Organize an engineering subdepartment
2. Hiring and training other engineers and draftsmen
3. Surveys of existing buildings and architect's plans of new construction
4. Analysis of thermal and psychrometric requirements.
5. Competitive economic studies
6. Cost estimates (a) Investment; (b) Operating
7. Preparation of contracts
8. Detail plans and specifications
9. Sub-Contracting
10. Supervision of installation
11. Coordination of trades
12. System balancing
13. Conducting performance tests
14. Creating purchaser good will
15. Prepare operating and service instructions
16. Cooperation with sales and service on: (a) Plans and policies; (b) Research; (c) Assist in training programs; (d) Consultation.

From a review of these duties it is apparent that the application engineer must be a person of good technical background, personality and with executive abilities. In addition, he must be trained in the specific field of air conditioning. Moreover, in the case of many utilities, this man will operate with little supervision because of lack of a good yardstick for measuring his performance. Minimum qualifications may be listed as follows:

1. Technical training in Mechanical, Chemical or Architectural Engineering
2. Some practical experience
3. Specific course in air conditioning (Outlined later in this paper)
4. Experience and/or training in design, installation and service.

5. Limitations of Supply

The reader has, doubtless, come to the conclusion that there are few men available with these qualifications. In fact, there has always been a shortage of good application engineers, and the situation now is somewhat worse.

Up to recently, with few excep-

tions, there were no courses of training available to the young man who envisioned a good future in the air conditioning field. The men, presently trained, have been taught all they know by some manufacturer who "had to make its own." But the total supply would hardly fill the gas industries' needs in 1947.

And so, in summary, the gas industry can promote a most attractive load in gas all year air conditioning, only in proportion to its ability to get trained personnel, and the supply is acutely limited. The following suggestions may be helpful in solving this problem, and, in the course of two years, may provide all of the talent needed.

Suggestions for Solution of Problem

The following four topics include suggestions which may aid in breaking the serious bottleneck:

1. Where to Get Men

There is always the course of stealing or *attracting* men from competition or the business which has made the investment in training them. This plan has many moral hazards which render it the least attractive of the two presented here.

The recommended procedure is to "make your own," following a plan similar to the one suggested herein.

The men may be drawn from several sources.

1. Existing personnel with engineering and some practical experience
2. Graduates from accredited universities in mechanical or chemical engineering
3. Returned service men having experience in air conditioning work
4. Industrial gas engineers.
5. Men with experience in architectural engineering offices.

2. Where to Train

The *Utility* with proper qualified instructors may elect to train its own men under its own roof. This process was used by nearly every utility in the past and by all of the manufacturers. But it involves the cost of the trainer as well as trainee for the entire period of training, and is a never ending process. In a reasonable time a source of trained manpower should be available to furnish the industry's needs.

As suggested before, *Manufacturers* have trained their own men in the past, and may continue to do so, unless some more satisfactory sources of talent are substituted. The manufacturer cannot, in all fairness, be expected to bear the full training burden. In addition, the desired curriculum, suggested later, calls for more training than the manufacturer can economically furnish, or can be included in a two or three week course. The manufacturer can only afford to train men in the specific application of its own product, and will freely admit that the Utility really needs men of broader experience. Further, the work can hardly extend beyond class room lecture work unless the training is extended over a longer period of time.

The *University* lends itself very well to this need. It has the faculty, the laboratory, and the environment. It recognizes its responsibility in providing adequately trained men for industry. It only needs a suggested curriculum, and the will to help. We can furnish the former, and the gas industry should sell them on the idea.

The University should offer a special short course in Practical Air Conditioning to cover the subjects in the following curriculum and to provide for the requirements and duties listed above. It seems desirable that such courses be offered by only a few well chosen universities, centrally located and with proper laboratory facilities. Persons attending these course would be:

1. Men sent by the Utility and Manufacturers (existing personnel)
2. Employed veterans sent by Utility and Manufacturers in cooperation with G. I. Bill of Rights
3. Returned veterans, wishing to exercise G. I. Bill of Rights for extending their education before seeking employment
4. Graduates of Engineering Colleges wishing to take specialized post-graduate work.

Universities wishing to offer such a course of training could depend upon manufacturers and experienced utility men for guidance and cooperation.

Universities Now in Receptive Mood

The January issue of "Refrigeration Engineering" carried a valuable article titled "Educational Guide to Refrigeration and Air Conditioning Training Facilities in the U. S." cataloging the universities, colleges and vocational schools offering training courses in the fields, along with credits, prerequisites, etc. A remarkable range of subjects are offered and the work is tabulated under the following headings:

1. University or College Courses in Refrigeration and Air Conditioning
2. Vocational and Trade School Courses in Refrigeration and Air Conditioning
3. University or College Extension Courses in Refrigeration and Air Conditioning
4. University or College Graduate Work Available in Refrigeration and Air Conditioning
5. University or College Laboratory Facilities in Refrigeration and Air Conditioning
6. University or College "Technical Aide" Courses primarily or exclusively for Veterans
7. University or College Correspondence Study Courses in Refrigeration and Air Conditioning.

This indicates that the higher institutions of educations recognize air conditioning as a great potential field for engineering talent and their obligation to that industry in supplying it with men of proper technical training.

The tabulation further indicates that many of the colleges are exceptionally well organized in both staff and laboratory facilities for conducting courses in such subjects.

Suggested Curriculum for Training in Gas All Year Air Conditioning

Practical

Air & Water Vapor Mixtures
Requirement for Comfort
Psychrometry
Air Cond. Systems
Winter Air Cond. Load
Heaters
Humidifiers
Air Filters
Application of Winter Air Cond. Equipment
Introduction to Refrigeration Principle
Refrigerants
Refrigeration Systems
Summer Air Cond. Load
Dehumidifiers
Condensing Equipment
Modern Refrigeration Equipment
Application of Summer Air Cond. Equipment
Temperature & Humidity Controls
Fan Design & Characteristics
Pump Design & Characteristics
Duct System Design & Characteristics
Insulation (Thermal, Sound Vibration)
Water Conservation Equipment
Water Problems
Weather Bureau Data—Degree Day Degree Hour Studies
Cost Estimating—Investment, Operation
Analysis of Architect Plans
Specifications & Contracts
Labor Cost, Coordination and Contro

Working Knowledge of Gas Distribution Systems & Appurtenances.

Academic

Design of Simple Systems } **by industrialist showing use of handbooks, etc.**
Foundations
Sheet Metal Layout
Pipe Layout
Grille & Registers
Controls

Experience in Shops
Sheet Metal
Pipe
Complete Design of Complicated Job
Experience Supervising Installation of 6 Different Jobs (from plans by others)
Balancing Systems in Field
Experience with Service Men

Conclusion

This study was prompted by a keen realization of existing problems. The foundation for the discussion of the problem and the suggested solution is a matter of many years' experience.

Immediate steps should be taken to aid the gas industry in selecting and training men to fit its needs. If the plan here presented appears desirable and practical, a committee should be appointed by S.G.A. to work in coordination with a similar committee of A.G.A. to further study and improve upon this idea and take the necessary steps to get the plan into operation. Preliminary discussions with the Deans of several Engineering Colleges indicate that the plan will be favorably received by them and full cooperation can be expected.

This plan represents an opportunity for the Gas Association to render a valuable service to its Utility and Manufacturer Members.

Presented at the Southern Gas Association Meeting, March 20-23, 1946, Galveston, Texas.

School of American Cookery At Portland Gas & Coke Co.

TEAS, parties and other social events galore had welcomed GI brides from overseas upon their arrival in Portland, Oregon, but it remained for Portland Gas & Coke Company and the Welcome Wagon Service Company, with cooperation from the Daughters of the British Empire, to come up with a truly practical welcome — a school in American cookery!

The school prompted two radio broadcasts and coverage by the local press — even to editorial comment. An illustrated Sunday magazine feature also appeared in one of the local papers.

The "class room" was the Gas company's Hospitality House, an ultra modern gas kitchen situated on a platform at one end of a special demonstration auditorium on the lower level of the building.

Invitations to enroll in the school were extended well in advance and in person by staff members of the Welcome Wagon Service, a nation-wide organization whose business it is to welcome newcomers to communities in behalf of merchants and other sponsoring clients.

On the morning of the day that school began, a corsage was delivered to each GI wife who had indicated her intention of enrolling. This was but one of several gestures that drew warm praise from the "students."

Upon arrival at class, each GI wife was presented with a convenient and attractive loose-leaf binder in which to placed typed recipes, bulletins and other information given out at each session. Blank sheets also were included for convenience in jotting down notes and memos.

An especially appreciated hand-out piece was the colorfully printed booklet, "Bride's Guide to Good Cooking — Northwest Fashion," which had been prepared by the Gas company's home service division to distribute to all new brides and which features recipes for preparing delicacies of the Pacific Northwest.

Five Classes in Series

Classes were of the demonstration type and conducted by Rita Calhoun, home service director for the Gas company, who was assisted by Lois Heesacker of the home service staff. Informality was the keynote of the entire school. Questions and comments were encouraged and a friendly spirit prevailed throughout the entire series, the "students" looking ahead to each session with anticipation.

Lesson number one was more of a get-acquainted affair and in more ways than one because it was devoted largely to an introduction to Ameri-

Left:—Rita Calhoun, who instructed the class, explains the function of a simmer burner to a group of GI wives from overseas.
Right:—Radio broadcasts featured two of the cooking school sessions, with GI wives from various countries interviewed in front of the mike.

can cookery with such basic instruction as shopping wisely, kitchen terminology, and measuring ingredients. There also was time for broiling lamb chops, baking muffins and doing a few other basic operations.

The second class was devoted to breakfast menus and how to prepare such American favorites as bacon and eggs, hot cakes, coffee cake, French toast, biscuits, omelet, etc. The biggest surprise to many of the GI brides, but a pleasant one they admitted, was the combination of sweets and savories; as, for example, jelly with omelet.

It also might be stated here that a a very enjoyable part of each class period was the "sampling" that took place "up front" where the students gathered before departing.

It was during the second class that a radio broadcast was transcribed in Hospitality House by station KEX and featuring ad lib interviews with GI wives from the various parts of the world. Candid camera shots also were made during the afternoon.

Lesson number three had to do with lunches and included menu suggestions and recipes, beginning with cream sauce and its variety of uses. Salads, too, received considerable attention, especially such American favorites as potato salad, fruit salad, tossed vegetable salad, and molded salad. The proper salad dressings also were stressed. Baked apples and chocolate brownies were the featured dessert.

Also of special interest at the third session was a play-back of the transcription made during the second session.

Dinners held the spotlight on the fourth Wednesday, with the ever popular American yeast rolls and pies the highlights on the menu. Recipes for most other dinner dishes, such as meats, were covered by the home service division's regular bulletins. Salads, etc., had been covered earlier in the school.

During the fourth session additional pictures were made, this time in groups by countries and to be presented as souvenirs the following week at "graduation." It was also during this session that a "live" radio broadcast was put on the air by station KEX.

The fifth and final class was devoted to entertaining, especially "company" dinners and luncheons. Even "surprise" company dinners were covered. As for the conventional or "invitational" type of meal, emphasis was placed on the importance of careful planning to avoid last-minute rushing and confusion.

Many expressions of appreciation were expressed by the GI wives at the closing session and acknowledged by the sponsors, who pointed out that their interest and service are continuous and not confined to the five weeks of the school.

All in all, the school made many friends and performed a community service by welcoming the newcomers from overseas; not only socially but by helping them get acquainted with the ways of their new country and especially the Pacific Northwest with its style of cooking to which their GI husbands are accustomed.

New Gas Services Featured

"On the Job with Portland Gas" is the title of a promotional sheet issued at intervals for use as a mail stuffer or for counter distribution.

The June circular describes briefly new installations in restaurants, dairies, dry cleaners and garages, principally for water heating. A pipe coating installation using automatically controlled gas burners is also mentioned.

GAS METERS

ARMY E NAVY

RADAR

Lambert Meter Co.
Plainfield, N. J.

Have you considered a
CHECK-UP
of
GAS PLANT PERFORMANCE
Investigations and Reports
by Qualified Engineers
COAL CARBONIZING COMPANY
314 North Broadway
St. Louis 2, Mo.

GPM
IRON HYDROXIDE
The mark of
unerring dependability
in purification
GAS PURIFYING MATERIALS CO., INC.
3-15 26th Ave.
Long Island City 2, New York

When Confidence Counts

you can rely on

UNIVERSAL

GAS RANGES

Merchandise that inspires confidence inspires sales! For three quarters of a century Universal Ranges have been the standard by which all others were judged.

And, today, the new Universal Gas Ranges set the pace for looks, for performance and for lasting satisfaction.

That's why you can rely on Universal Gas Ranges, backed by Universal's hard-hitting merchandising, to get your share of this expanding market.

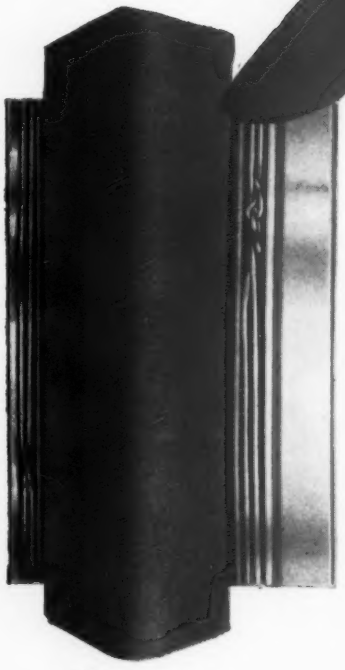
GAS *The Preferred Cooking Fuel* **UNIVERSAL** *The Preferred Gas Range*

CRIBBEN & SEXTON

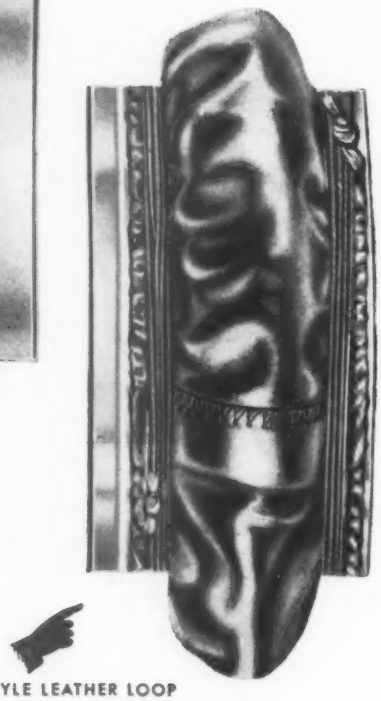
UNIVERSAL *Gas* RANGE

700 N. SACRAMENTO BLVD. CHICAGO 12, ILLINOIS

How Vulcan's New MOLDED LOOP DIAPHRAGM Prevents Tie Leaks



THE NEW IMPROVED LOOP



OLD STYLE LEATHER LOOP

A VASTLY improved method of attaching the diaphragm to the rings!

That's one of many important reasons why utilities everywhere are adopting the new VULCAN Molded Loop . . . the greatest diaphragm advancement in gas meter history.

The new molded loops are securely vulcanized to the rings by means of special durable wire. Each fastening is uniform. This eliminates the old, crude practice of tieing on by hand . . . with bulky, non-uniform knots. It means a more positive seal—a safeguard against costly string leaks.

Note the regular, streamlined shape of the new VULCAN Molded Loop . . . the absence of irregular wrinkles . . . the natural hinge molded in for maximum flexibility and more sensitive operation and thus more accurate metering.

Get the facts. See what progressive improvements VULCAN long-term research has made in diaphragms. Write the meter company, or direct to us.

VULCAN

PROOFING COMPANY

FIRST AVENUE AND FIFTY-EIGHTH STREET, BROOKLYN 20, N. Y.

Equilibrium Water Vapor Content of Compressed Gases

Compiled by
E. G. Hammerschmidt
Texoma Natural Gas Company
Fritch, Texas

BARTLETT[1] has shown that the actual vapor content of saturated compressed gases is larger than is calculated by the usual method in which temperature effects are alone considered and in which the volume is calculated by means of the laws of a perfect gas. Using various methods of correction, a quantitative relationship has never been established from calculated results so that it has been necessary to rely on experimental data for accurate results. Several investigators have experimentally determined the water vapor content of different gases over a wide range of temperatures and pressures. Pollitzer & Stoebel[2] measured the equilibrium water vapor in air and hydrogen at 122°F. and 158°F. from about 100 psia to 2800 psia. Laulhere & Briscoe[3] measured the water vapor in California natural gas at 60°F, 80°, 95° and 110°F. at pressures up to 500 psia. Deaton & Frost[4] measured the water vapor in Texas natural gases, helium and air, at temperatures between 40°F. and 100°F. and at pressures up to 600 psia. Olds, Sage and Lacey[6] measured the water vapor in pure methane and pure ethane at 100°F., 160°F., 220°F., 280°F., 340°F., 400°F., and 460°F., within a pressure range of 200 psia to 10,000 psia. Russell, Thompson, Vance & Huntington[8] measured the water vapor in Oklahoma natural gas in the temperature range 50°F. to 95°F. and at pressures of 1,000, 1500, and 2000 psig.

An effort has been made to correlate the data published by the above mentioned investigators, for the purpose of constructing a utilitarian chart that covers a broader range in temperature and pressure conditions than has heretofore been generally available to the industry. This charge should be of value for engineering work throughout the natural gas industry, wherever high pressure gases are used. Deaton & Frost[3] found some difference in the water carrying capacity of different gases. However, they conclude that the indicated variation in water-carrying capacity of two widely different natural gases probably is not much greater than the precision of the experimental data. Of the two natural gases under comparison, one contained 9.4% nitrogen and the heating value was about 1050 Btu per cu. ft.; the other contained 25% nitrogen and the heating value was about 837 Btu per cu ft. Olds, Sage & Lacy[6] data show a variation of 0.5% to 2.5% in the water-carrying capacity of methane as compared with ethane at a temperature of 100°F. and pressures from 200 to 2000 psia. It appears that the deviation of the water carrying capacity in methane as compared with air or natural gas in less than the deviation between the several investigators data and hence a chart prepared from these data should be sufficiently accurate for engineering work with natural gases of widely variable composition.

The first step in the construction of the chart consisted in plotting the water vapor content against tempera-

American Gas Association, Technical Section, Joint Production & Chemical Committee Conference, Hotel Pennsylvania, New York, June 3, 4, 5, 1946.

DEATON & FROST DATA USING TEXAS NATURAL GAS

Water vapor content	Temperatures Corresponding to Indicated Pressures					
	100 psia	200 psia	300 psia	400 psia	500 psia	600 psia
22.56	...	...	...	47.5°F.	52.5°F.	56.5°F.
32.4	...	41.6°F.	51.0°F.	58.5	64.0	68.5
53.2	37.0°F.	55.0	65.5	73.5	79.5	84.5
84.9	48.6	67.9	80.0	88.0	94.0	99.0
100.0	...	73.0	85.0	93.0	99.5	105.0
154.1	66.3	86.5	98.5	...	...	...

DEATON & FROST DATA USING AIR

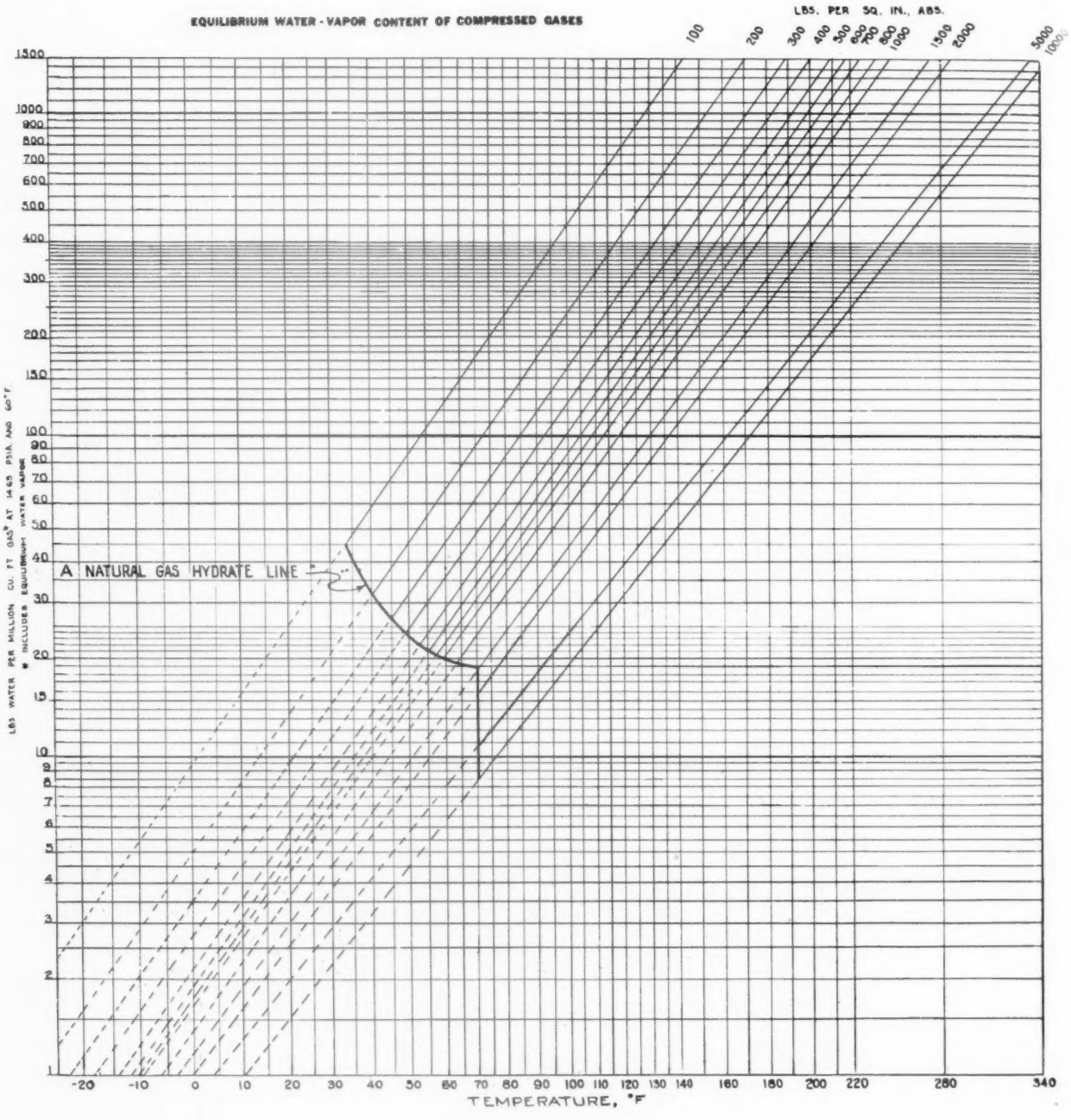
24.5	...	...	...	...	...	54.5
33.3	...	41.2	51.5	58.9	64.5	69.2
51.1	...	54.5	66.5	73.8	79.5	84.9
82.8	...	68.0	80.5	88.0	94.1	99.6
152.5	...	87.0	99.0	...	...	...

LAULHERE & BRISCOE DATA USING CALIFORNIA NATURAL GAS

Pressure psia	Water Vapor Content Corresponding to Indicated Temperature			
	60°F.	80°F.	95°F.	110°F.
100	125.4	244.7	373.3	576.1
200	66.7	127.9	192.6	297.4
300	45.7	87.8	131.9	203.7
400	35.8	68.1	101.6	156.6
500	29.2	56.1	83.2	128.2

OLDS, SAGE & LACEY DATA USING METHANE

Pressure psia	Water Vapor Content Corresponding to Indicated Temperature				
	100°F.	160°F.	220°F.	280°F.	340°F.
200	241	1176			
400	128	618			
600	90.5	426	1497		
800	71.7	335	1158		
1000	60.3	279	955		
1250	51.3	234	793		
1500	45.2	204	684		
2000	37.6	166	548	1492	
3000	30.0	128	413	1104	
4000	26.3	110	345	910	
5000	24.1	98.5	304	797	
6000	22.7	91.2	277	722	
7000	21.5	86.0	259	667	1503
8000	20.7	82.4	246	626	1399
9000	20.0	79.6	236	594	1316
10000	19.5	77.7	228	568	1250



ture at a single pressure of 800 psia. Deaton & Frost data were extrapolated from 600 psia to 800 psia. Laulhere & Briscoe data were extrapolated from 500 psia to 800 psia. The Russell et al data were not used at this pressure because a change in slope occurs between 800 psia and 1000 psia. Extrapolation was not required for the Olds, Sage and Lacey data nor for the Pollitzer & Stoebel data. All available points were plotted on semi-logarithmic paper and a smoothed curve was drawn. Data from this plot were then used to construct a Cox chart in which the ordinate or water vapor content scale is a logarithmic scale and the abscissa or temperature scale is a non-uniform scale which is spaced so that the 800 psia curve becomes a straight line. Other pressure lines were then drawn from the experimental data as indicated in the tabulation of the various investigators work.

POLLITZER & STOEBEL DATA USING AIR

Pressure	Water Vapor Content Corresponding to Indicated Temperature	
psia	122°F.	158°F.
200	443.8	1056
300	303.0	729
400	232.8	574
500	189.2	475
600	159.5	408
700	138.6	358
800	121.7	320
900	109.7	290
1000	99.8	268
1250	82.4	220
1500	72.9	189
2000	61.9	148.5

A natural gas hydrate line is also shown.[4] The position of this line will shift considerably with a change in composition of the gas. For example, the ethane hydrate line lies above the indicated natural gas hydrate line in an amount that may vary from 5°F. to 10°F. higher than the natural gas hydrate line at any given pressure.[3] Similarly, the methane hydrate line lies from 13°F. to

RUSSEL, THOMPSON, VANCE & HUNTINGTON DATA USING OKLAHOMA NATURAL GAS

Pressure psig	Temp. °F.	Water Vapor Content Lbs./million cu.ft.
1000	76	27.5
1000	86	38.3
1000	91	44.1
1000	93	45.2
1500	60	14.5
1500	78	22.1
1500	81	25.5
1500	85	27.3
1500	93	36.8
2000	70	15.6
2000	78	20.0
2000	95	31.6

18°F. below the natural gas hydrate line. The indicated natural gas hydrate line may properly be considered as occupying a position that corresponds roughly to the central portion of a hydrate zone. When the composition of the gas is known, data for plotting a natural gas hydrate line may be calculated as shown by Carson & Katz.[2] Villard[9] found that methane hydrate was not formed above 71°F., regardless of increasing pressure, hence the natural gas hydrate line becomes vertical near this temperature. Below the hydrate zone, the pressure lines are continued as broken lines to indicate a metastable condition in which it is assumed that water vapor is in equilibrium with liquid water rather than with solid hydrate or ice. This portion of the curve is convenient for converting low dew point measurements to pounds water per million cu. ft.

Since the several investigators reported their results in various units of measurements, it was necessary to compute all data to a common basis. The water vapor content has been computed to pounds water per million cu. ft. of gas, measured at 60°F. and 14.65 psia, and the volume occupied by the equilibrium water vapor is included as part of the one million cu. ft. of gas.

Literature Cited

(1) Bartlett, J. Am. Chem. Soc. 49, 65 (1927).
(2) Carson & Katz, Am. Inst. Mining Met. Engrs., Tech. Pub. No. 1371 (1941).
(3) Deaton & Frost, Amer. Gas Assoc. Proc. 23 (1941); 22 (1940).
(4) Hammerschmidt, Ind. Eng. Chem. 26, 851 (1934).
(5) Laulhere & Briscoe, Gas, Sept. 1939, p. 21.
(6) Olds, Sage & Lacey, Ind. Eng. Chem. 34, 1223 (1942); 35, 790 (1943).
(7) Pollitzer & Stoebel, Z. physik. Chem. 110, 768 (1924).
(8) Russell, Thompson, Vance & Huntington, Am. Inst. Mining & Met. Engrs., Tech. Pub. 1792 (1945).
(9) Villard, Compt. rend. 106, 1602 (1888); 107, 395 (1888).

Pipe Line Construction Recently Authorized by F. P. C.

THE Federal Power Commission has authorized **Panhandle Eastern Pipe Line Company** to construct and operate additions to its main gas transmission system extending from Texas to Michigan. The facilities, designated as Group A in the company's recent application, were proposed for completion in 1946 as part of a two-year construction program. Estimated cost is $6,216,000.

The group of facilities authorized includes:

1. A field compressor station, to be designated as "Sunray Compressor Station," located near Sunray, Moore County, Texas. It will have a capacity of 3000 HP and will include a dehydration plant.

2. Additional compressor units of 800 HP to be installed in existing compressor stations as follows: 3 at the Hansford Compressor Station in Hansford County, Texas; 2 at the Hugoton Compressor Station in Stevens County, Kansas; and 1 at the Olpe Compressor Station in Lyon County, Kansas.

3. Two 1600 HP compressor units to be installed in each of these stations; the Glenarm Compressor Station in Sangamon County, Illinois; Tuscola Compressor Station in Douglas County, Illinois; Zionsville Compressor Station in Marion County, Indiana; and Edgerton Compressor Station in Allen County, Indiana.

4. Fifty miles of 18-inch trunk line extending from the vicinity of Shamrock Oil and Gas Company's natural gas processing plant in Moore County, Texas, to the Hansford Compressor Station, and 24 miles of 26-inch loop line extending from the outlet side of the Tuscola Compressor Station paralleling existing loop lines.

5. Compressor cylinder and valve changes on equipment and piping at the Liberal Compressor Station, Seward County, Kansas.

Southern Natural Gas Company, Birmingham, Alabama, has been authorized to (1) construct and operate about 80 miles of 16-inch natural gas transmission pipeline extending from Pickens, Mississippi, to the Gwinville Gas Field located in Jefferson Davis and Simpson Counties, Mississippi, (2) install meters, pressure regulating equipment and other facilities to tap the company's lines at points of connection with lines to be constructed by the Town of Ragland, Alabama, the City of Sylacauga, Alabama, Alabama Gas Company, Alabama Natural Gas Corporation, Birmingham Gas Company and Atlanta Gas Light Company, and (3) construct and operate about 7 miles of 6-inch line near Tallageda, Alabama. Total cost of the facilities is estimated to be $2,608,200.

☆ ☆ ☆

Kentucky Natural Gas Corporation, Owensboro, Kentucky, has been authorized to construct and operate approximately 18 miles of 10¾ inch natural gas transmission pipeline extending from the vicinity of Russellville, Kentucky, to near Mitchellville, Tennessee.

The pipeline is to be utilized to receive a supply of gas from Tennessee Gas and Transmission Company under a contract by which that company argeed to supply Kentucky Natural up to 60,000 therms of natural gas per day upon the issuance of a certificate of public convenience and necessity to Tennessee Gas and Transmission for the purchase from Reconstruction Finance Corporation of four compressor stations located in Washington County, Mississippi, Hardeman and Robertson Counties, Tennessee and Montgomery County, Kentucky. Such authorization was granted Tennessee Gas and Transmission by FPC on June 18.

The facilities to be constructed by Kentucky Natural are estimated to cost $213,840.

☆ ☆ ☆

Tennessee Gas and Transmission Company, Houston, Texas, has been authorized to construct and operate approximately 95 miles of 16-inch transmission pipeline extending from the San Salvador Field in Hidalgo County, Texas, to a point of connection with the company's main transmission pipeline in Nueces County, Texas, together with a dehydration plant in the San Salvador Field, in a Federal Power Commission order announced today. Cost of the facilities is estimated at $2,260,442.

United Gas Pipe Line Company, Shreveport, Louisiana, has been granted authorization to construct additions in Mississippi and Louisiana to its main pipeline system which serves industrial and wholesale customers in Louisiana, Texas, Mississippi, Alabama and Florida. Cost of the authorized facilities together with necessary field facilities is estimated to be $2,277,000.

☆ ☆ ☆

Cincinnati Gas Transportation Company, Charleston, West Virginia, has been authorized to construct approximately 70 miles of 14-inch natural gas pipeline extending from a point on its main transmission line near Foster, Kentucky, to a proposed interconnection with Tennessee Gas and Transmission Company's 24-inch pipeline near Means, Kentucky, in a Federal Power Commission order made public today. The new line is authorized to increase deliveries of natural gas to meet requirements of the Cincinnati Gas & Electric Company which serves Cincinnati and other communities in southern Ohio, and the Union Light, Heat and Power Company which serves Covington, Newport and other northern Kentucky communities. Cost of the line is estimated to be $1,800,000.

☆ ☆ ☆

Tennessee Gas and Transmission Company, Houston, Texas, has been authorized to construct facilities to increase by approximately 118,000 Mcf per day the capacity of its some 1265 mile main pipeline system extending from near Driscoll, Texas, to Cornwell, West Virginia. Cost of the project is estimated at $27,405,717.

Facilities planned for construction by the company include about 410 miles of 26-inch and 24-inch main line looping and approximately 20 miles of lateral gas feeder lines from the main line to producing fields; three new compressor stations with total installed capacity of 25,000 HP to be located in Victoria and Montgomery Counties, Texas, and Natchitoches Parish, Louisiana; and installation of 18 additional compressor units, aggregating 19,000 HP, in existing compressor stations.

☆ ☆ ☆

The East Ohio Gas Company, Cleveland, Ohio, has been authorized to construct and operate a 144-mile pipeline extending from Hope Natural Gas Company's outlet at the Ohio-West Virginia state line to the outskirts of Cleveland, the Federal Power Commission announced today. Cost is estimated to be $4,620,000.

☆ ☆ ☆

Hope Natural Gas Company, Clarksburg, West Virginia, has been authorized to construct and operate major additions to its present transmission system in West Virginia. Estimated total over-all capital cost of the facilities is $5,327,500.

The facilities are planned to augment Hope's transmission pipeline system in order to provide adequate supplies of natural gas to meet existing and increasing demands and to assure maintenance of adequate service to The East Ohio Gas Company, an affiliate, and other customers during the winter season of 1946-47. Such facilities include installation of a total of 3,000 HP compressor capacity in the Hastings and Jones Compressor Stations, construction of about 64 miles of 12¾-inch loop line to parallel existing lines, about 24 miles of 20-inch loop line also paralleling existing lines, approximately 55 miles of 12¾-inch pipeline to extend from the Jackson Compressor Station to Baileysville Magisterial District in Wyoming County, West Virginia, installation of a new dehydration plant, gas coolers and piping changes to Cornwell Compressor Station and construction of additions to the present dehydration plant at Jackson Compressor Station.

Michigan Natural Gas Storage Co.

The Michigan Natural Gas Storage Company was formed to facilitate the carrying out of a contract recently made between Consumers Power Company and the Panhandle Eastern Pipe Line Company which assures 240 Michigan communities of a plentiful supply of natural gas for a 25-year period. The storage company will operate the Winterfield and Cranberry Lake natural gas fields in Clare, Missaukee and Osceola counties as a storage reservoir for natural gas piped to Michigan from the fields of Texas, Kansas and Oklahoma. It will receive natural gas from Panhandle at Freedom Junction, near Chelsea, and transmit it to the storage area via a 24-inch pipeline, 150 miles long, which is scheduled for construction early in 1947. Completion of this pipeline and related construction work is expected to permit the lifting of the present restriction against the connecting of additional gas house-heating customers sometime during 1947.

As noted in the July issue of the *Journal*, natural gas delivered and stored during the warmer months will be used in winter to augment the regular daily deliveries by Panhandle to Consumers.

James A. Brown, vice president of Consumers Power Company, has been elected president of the Michigan Natural Gas Storage Company. Other Consumers men who will assist in guiding the affairs of the new company are Donald E. Herringshaw, who was elected vice president; A. J. Mayotte, secretary and treasurer; Dan E. Karn and J. R. Whiting, directors; C. I. Jones, W. H. Hoover and E. E. Nelson, assistant secretaries and assistant treasurers; and C. Wigand, assistant treasurer.

Natural Gas Now Services Lake Geneva, Wis. Area

Wisconsin Southern's officials estimate that natural gas will cut house-heating rates 35% and other household rates 20%; that commercial establishments should be able to realize a saving of somewhere between 20% and 35%, depending on volume used. In all, an annual saving of $50,000 in rates was predicted for all of the system's customers.

About six weeks was required for all sections of the utility's system to be changed over.

CRUSE-KEMPER COMPANY
AMBLER, PENNA.
GAS HOLDERS
Low Pressure High Pressure Inspection
Purifiers Tanks Flues
Over 40 Years of Sound
Steel Plate Construction

Manufactured Gas for the Future

By

W. E. Steinwedell

President the Gas Machinery Company

THE Manufactured Gas for the Future must successfully compete with other sources of heat, and to do so, must be produced at a minimum of cost of manufacture as well as of distribution.

The original manufactured coal gas contained about 550 Btu per cubic foot and later carburetted water gas of about the same heating value followed, but natural gas of about 1000 to 1100 Btu per cubic foot was afterward discovered, and where this was distributed through existing manufactured gas mains, the thermal carrying capacity of such mains was about doubled thereby cutting the fixed charges of interest, depreciation and taxes of the distribution system in half.

It is well, therefore, in thinking of manufactured gas for the future to be open minded as to the heat content of such a gas, as large industrial plants have for years economically used a straight Butane gas of about 3200 Btu per cubic foot for all their industrial furnaces.

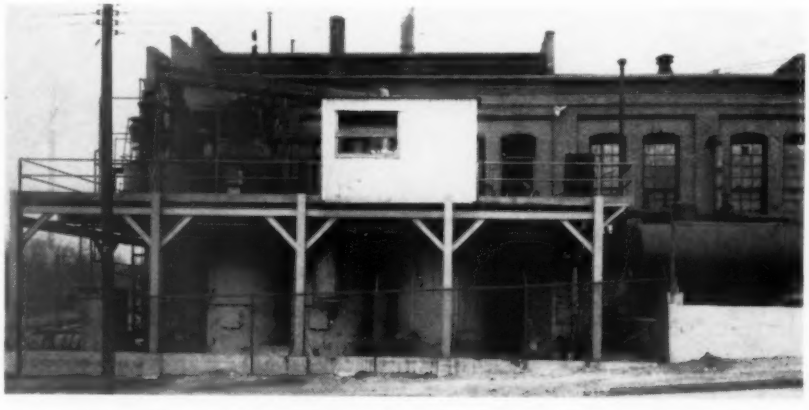
If existing or new equipment can be made to produce a more economical gas per therm, and this more economical gas can be made of about twice the heating value of the present manufactured gas of about 525 Btu per cubic foot, then the fixed charges on the manufacturing and distribution equipment would be cut about in half, and the present storage holders would be doubled in their thermal carrying capacity.

The cost of conversion of appliances for the higher heating value gas is not serious as this has been done for natural gas in practically all the big cities of the United States except in the Boston, New York, Philadelphia and Baltimore Districts.

Electricity, except in a very few isolated cases, has never been a competitor in the heating field, and coal, coke, other solid fuels and labor are increasing in cost; whereas the cost of oil has been reduced since the war, and is practically the only gas making material that has been reduced in cost.

With the ability again to obtain services, meters and gas burning appliances, the gas send-outs are going to be greatly increased, and the house and space heating loads are going to make larger peak demands on the gas manufacturing plants and distributing systems.

The cost of gas made in gas ovens or retorts has steadily increased during a number of years due to the greater investment per unit of output and the increased cost of materials and labor combined with the reduced returns in by-products, and many coal gas plants have, therefore, been abandoned.



This out-door water gas set has housing over the automatic control and gauge board only. The exhaust steam accumulator is seen on the right.

It is necessary to reduce the investment in gas plants and distribution system per heating unit of gas manufactured and distributed as well as reduce the cost of the gas manufactured.

As oil is the only raw material that has been reduced in cost, it seems reasonable to believe that an oil gas as described on page 219 of the 1943 Proceedings of the American Gas Association, or an enriched reformed oil gas of about twice the heating value of the manufactured gas is the proper gas to manufacture and distribute, for in the manufacture of oil gas all expensive fuel and ash handling, equipment, labor of operating same, clinkering and other auxiliary charges in connection with the handling of coal, coke, etc., are entirely eliminated.

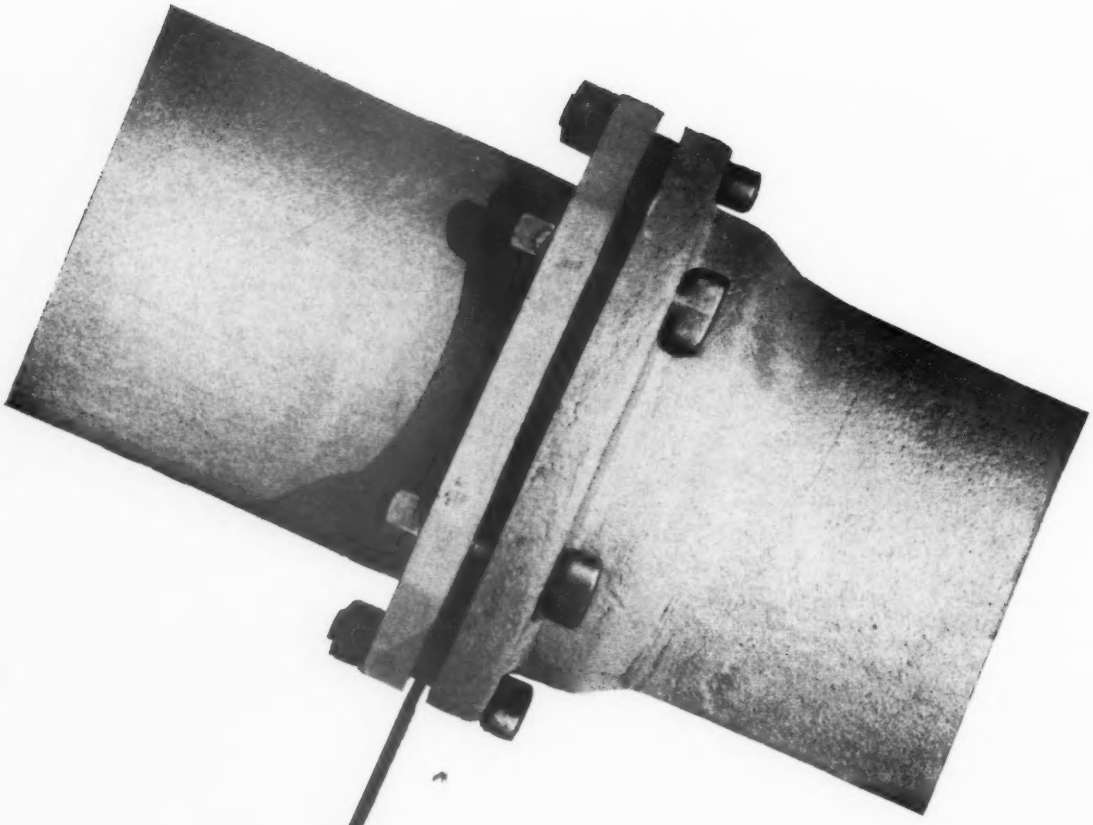
The thermal output of a carburetted water gas set can now practically be doubled by converting it to a twin-generator oil gas set and making a high Btu reformed oil gas, and by so doing, the fixed charges of interest, depreciation and taxes on the manufacturing as well as the distribution system of a manufactured gas property, are cut in half.

The liquid petroleum gases, Butane and Propane, can in many cases, be used advantageously for emergencies and peak loads and the amount that can thus be used depends on the cost of the liquid gas and the length of time for which the supply of such liquid gas can be guaranteed.

Butane and Propane gases have also been reformed in carburetted water gas sets to make a gas of about 1000 Btu to take care of peak loads where natural gas has supplanted manufactured gas, and by making an equivalent high Btu gas in the water gas sets using the L-P gases or oil gas properly reformed, it has been possible to keep the manufactured gas plants in the rate base as they serve to take care of any reduction in the natural gas supply as well as peak loads.

There is also reformed oil still gas when oil refinery gas is available, and in connection with this reforming of oil still gas, the Hughes Oven Process which carbonizes oil to produce oil gas and coke, can be advantageously used.

(Concluded on page 50)



PERFORMANCE

The performance of cast iron pipe in gas distribution service is an open book—a matter of record for all to see. There is no room for doubt that cast iron pipe delivers long, dependable and economical service. But, in addition to proved performance, cast iron pipe offers *plus values* of prime importance, especially to construction engineers. Mechanical joint cast iron pipe, for example. It can be, and frequently is, installed by men without previous experience with the joint. A wet trench presents no difficulties. Time is saved under any conditions when mechanical joint cast iron pipe is installed. And the joints are bottle-tight under all normal working pressures.

CAST IRON

Standardized **MECHANICAL JOINT**

PIPE

A 10-inch cast iron gas main recently uncovered for inspection in Philadelphia. It is part of the city's oldest gas main and in good condition after 111 years' service.

PLUS

Now, mechanical joint cast iron pipe presents a new plus value—standardization! All fittings and accessories are *interchangeable* with those furnished by other makers of mechanical joint cast iron pipe. Cast Iron Pipe Research Association, Thos. F. Wolfe, Research Engineer, Peoples Gas Bldg., Chicago 3, Ill.

California Extension of Texas Transmission Line Now in Progress

By

Fred A. Herr

BY ORDER (No. 134) issued on June 7, the Federal Power Commission authorized El Paso Natural Gas Co. of El Paso, Tex., and Southern California Gas Co. and Southern Counties Gas Co. of Los Angeles to construct and operate facilities, including approximately 1200 miles of interconnected pipelines, to transport natural gas from Texas and New Mexico fields to the Los Angeles area, in order to meet a developing shortage in Southern California's natural gas supply.

The total estimated cost of the 3-company pipeline and appurtenances is $70,000,000. The California Railroad Commission has already issued a certificate of permission for construction of the California phase of the work.

F. S. Wade, president of the two Los Angeles utilities, announced in a statement issued at Los Angeles on June 8 that, in anticipation of a favorable decision from the F.P.C., the two companies had already started the preliminary work on the California link of the joint pipeline project.

Pipe Contracts Already Awarded

It was also disclosed at Los Angeles on June 8 that the original plans for laying a 26-inch, 214-mile long line from the Colorado River at Blythe, Calif., to Santa Fe Springs, near Los Angeles,* had been revised in favor of a 30-inch diameter line. Southern California and Southern Counties gas companies have already awarded contracts totaling more than $6,000,000 to the Consolidated Steel Corp., Vernon, Calif., for the fabrication of the more than 200 miles of 30-inch pipe required for the California phase of the project. Fabrication of the 58,000 tons of pipe was scheduled to begin this summer.

"Despite the current unpredictable production capacity of the steel industry," President Wade stated, "we are making every effort to have the pipeline in operation during the winter of 1947-48. We are indeed fortunate to be able to augment California supplies by connection with the extensive reserves in Texas and New Mexico. It is interesting to note that a substantial portion of the gas to be carried through the new line is now being wasted because there is no market for it."

The integrated pipeline system is planned for three progressive stages of construction and operation, with gas deliveries by the El Paso Co. to the California-Arizona border scheduled to begin by June, 1947, and to continue for 30 years under contracts already entered into by the gas utilities concerned.

The maximum contracted volumes to be delivered by the El Paso Co. are 125,000 MCF per day the first year, 175,000 MCF per day the second, third and fourth years, and 305,000 MCF per day the fifth and successive years.

Facilities Approved to Cost 70 Million

Facilities authorized under the F.P.C. order for construction by the El Paso Natural Gas Co. include 737 miles of 26-inch pipeline from Eunice, Lea County, New Mexico, to the California-Arizona state line near Blythe; a 251-mile extension of 24-inch transmission line from Dumas, Tex., to the Eunice plant in New Mexico; compressor stations with an aggregate in the final stage of 129,800 h.p.; five connecting lateral lines in the Permian Basin in New Mexico and Texas; three gas purification and dehydration plants, plus one gas dehydration plant; and appurtenant facilities. The authorized pipeline facilities of the El Paso Co. are estimated to cost $53,800,000, and those of the two Los Angeles concerns, $16,225,000, bringing the total cost of the project to $70,025,000.

Southern California Gas Co. and Southern Counties Gas Co. are authorized by the F.P.C. order to construct during the first year 214 miles of 30-inch connecting pipeline extending from the Colorado River at Blythe to Santa Fe Springs; a number of lateral lines and appurtenant facilities. The 30-inch line, largest diameter gas pipeline authorized by the F.P.C., is designed for 52,000 MCF per day of line-pack storage in addition to the rated delivery capacity of 305,000 MCF daily. A 10,000 h.p. compressor station near Blythe is planned for the final stage of construction.

In determining a slight change in route was also the fact that in adopting the 30-inch instead of the 26-inch diameter pipe, the possibility existed that, should the companies later be justified in increasing the project capacity from 305,000 MCF per day to 400,000 MCF per day, a substantial saving in incremental annual cost would be gained.

It was reported that studies, based on a more detailed analysis of the gas companies' requirements, have demonstrated an immediate need for a substantial addition to storage facilities and prompted them to provide such storage in the form of line-pack. The proposed line-pack storage involves annual costs of approximately one sixth of those for the conventional type of gas holders.

Another change involves altering the originally contemplated delivery pressure of gas from 250 p.s.i. above normal atmosphere at point of delivery as specified in the contract with the El Paso Co., to the following:

For and during the period of time that the maximum contracted daily demand shall be 125,000 MCF, 474 pounds p.s.i. gauge.

For and during the period of time that the maximum contracted daily demand shall be 175,000 MCF p.s.i. gauge.

No Formal Protests Lodged

Executives of the two Los Angeles companies pointed out that an unusual feature of the proceedings before the F.P.C. was the lack of formal protest or opposition which has been an element of many of the larger gas transmission project pro-

* *See article Jan. 1946 issue.—Ed.*

ceedings. In this case, the firms pointed out, the issuance of a certificate was recommended by the California Railroad Commission, the City of Los Angeles, City and County of San Francisco and the Los Angeles Chamber of Commerce.

In a review of the 1700 pages of transcript evidence submitted in support of the Los Angeles gas companies' petition, the F.P.C. opinion pointed out a number of facts showing the need for an out-of-state gas supply for those concerns:

"The companies," the opinion stated, "own no natural gas production property and are dependent mainly upon oil well gas instead of dry gas for their local source of supply. As the oil producers are primarily interested in oil production, the gas companies must adapt their operations to the rate and volume of oil production to utilize the producers' sudplus oil well gas. Lately the oil companies have undertaken major pressure maintenance and repressuring projects to increase the future oil recoveries, thus withholding large volumes of gas from California utilities. Such gas may not be available to the California companies for from 15 to 25 years."

F.P.C. Lauds Gas Conservation

The F.P.C.'s attitude toward natural gas conservation is emphasized in one portion of the order in the following manner:

"An important consideration supporting the granting of this certificate," the order stated, "is the strong showing by the El Paso Co. that it will probably utilize presently wasted Permian Basin oil well gas for approximately 75 per cent of the maximum requirements of 305,000 MCF a day and take the remainder from the dry gas Panhandle and Hugoton Fields. Thus utilization of wasted natural gas for beneficial public use fosters a sound policy of conservation."

The F.P.C. commented on gas reserves as follows:

"The evidence on gas reserves available to the proposed pipeline from the Panhandle, Hugoton and Permian Basin sources is comprehensive. There is expert opinion evidence that Phillips Petroleum Co. (one of the firms with which El Paso Co. has signed contracts to buy gas) will be able to supply the El Paso Co. with gas from the west portion of the Panhandle Field and from the southern portion of the Hugoton Field at the rate of 190,000 MCF per day for 30 years. This witness also testified that El Paso's pipeline system will be the market outlet for future Permian Basin gas. He added that newly developed fields and future discoveries will offset the gradual deficiency from present Permian Basin fields for the 30 year period."

"It appears that the gas reserves available to El Paso will be adequate for approximately 30 years to meet the expected daily requirements of its present system plus the proposed pipeline to California, when the prospects of future discoveries in the Permian Basin are taken into consideration."

Financing Plans Approved

The El Paso Natural Gas Co. advised the F.P.C. that it proposed to finance the project in the following manner:

By sale to six insurance companies of $36,000,000 of 3 per cent 20-year first mortgage units.

Through a loan of $8,500,000 from Chase National Bank, agreement for which has been entered into.

By a contract with underwriters for the sale of $7,500,000 of preferred stock at a dividend rate of 4 to 4½ per cent.

By sale of $4,000,000 of common stock to present holders at $40 a share.

This program, the company set forth, will provide it with $56,000,000 to meet construction costs and refinance and allow for a $2,000,000 contingent fund.

Southern California Gas Co. and Southern Counties Gas Co. at present plan to finance their project from current funds, supplemented by a bank loan of $10,000,000.

In the summary of its order and opinion, the F.P.C. stated:

"This case is distinguished from others which have been considered by the commission involving midwestern and eastern natural gas pipeline companies. Applicant El Paso by means of its proposed pipeline project will utilize, as its major source of supply, oil well gas from the Permian Basin which otherwise would be wasted. Moreover, the record shows that no other natural gas pipeline company is proposing to utilize such gas or to serve the proposed market. The proposed project will serve only one market of any consequence in contiguous areas of Southern California and lacks the sometimes conflicting interests present in major certificate proceedings before the commission. In addition, the record contains evidence of the available natural gas reserves and deliverability for the ultimate capacity of the proposed pipeline for 30 years.

"The evidence shows that the prospects for discovering within California the necessary large volumes of gas which must be made available to the California applicants within the next few years are not encouraging. The California applicants are confronted, therefore, with a rapidly declining supply of local gas and an increasing customer demand for gas.

"Upon consideration of the record in this case, the Commission concludes that there is a public need and demand for out-of-state natural gas in Southern California, and that the economically feasible pipeline system proposed by the three qualified applicants will serve that need adequately and properly for the reasonably forseeable future."

The two Los Angeles gas companies started work on their section of the pipeline project within a few days after the F.P.C. approval was issued. Surveys of the route of the 30-inch, 214-mile line from the Colorado River to Santa Fe Springs were started in mid-June.

Executive, office and field engineering staff assignments for the project were also announced by Southern California and Southern Counties Gas Co. in mid-June. Headquarters for the engineering staff have been established on the third floor of the Sawyer Building, Eighth and Flower Streets, Los Angeles, across the street from the main office building of the gas companies.

B. M. Laulhere of Southern California Gas Co. has been assigned to direct the operations of the pipeline staff. J. B. Reddick has been named staff engineer, Milton J. Binckley location engineer, and Herbert A. Secor and R. B. Kipp, office engineers.

George Norman of Southern Counties Gas Co., has been appointed chief of the field party, with three field assistants: James T. Barrett, Jr., Walter C. Richardson and Arthur J. Robinson.

Other assignments are as follows: Supervising field engineering, G. C. Stamm; structural engineering, Frank Smith; design engineering, Bruno F. Bohnhardt; senior draftsman, Aza G. Lindley; draftsmen, Gilbert Smith and Henry W. Schultz.

A separate accounting staff has been set up under Charles C. Becker. John B. Minor will handle rights of way, assisted by J. A. Gallagher, Jr., and Dexter Thompson.

REYNOLDS DISTRICT STATION REGULATORS IN SERIES FOR ABSOLUTE SAFETY

REYNOLDS builds District Station Regulators in Single and Double District Types. Both Types of Regulators give satisfactory performance throughout a wide range of operating conditions. They are adaptable to use with special combinations where unusual conditions prevail. Arranged in series as illustrated, absolute safety is assured. REYNOLDS also builds a KT Series of Station Regulators having internal toggle levers which construction does not require an auxiliary bowl.

Reynolds Service is available on any gas control problem —Write or Call!

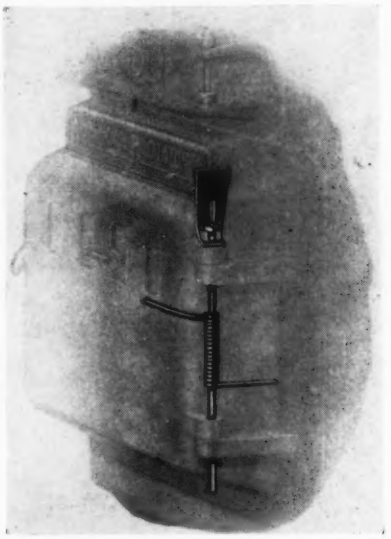
★ GAS CONTROL SINCE 1892 ★

Reynolds GAS REGULATOR CO.
ANDERSON INDIANA U.S.A.

THE INLAND DOOR CLOSER

DESIGNED for CONVERSION BURNERS

OVER 50,000 IN USE



This device, designed for conversion burners, automatically closes the fire door of a boiler or furnace when blown open.

It consists of a cadmium plated door hinge pin, spring and wedge. The hinge pin replaces the regular fire door pins, the spring furnishes the motive power and the slotted wedge holds the fire door in the open position when required.

Furnished in 3/16 — ¼ — 5/16 — ⅜" Sizes

INLAND MANUFACTURING CO.
1120 N. Cicero Avenue, Chicago, Ill.

COMPLETE GAS PLANTS
INDUSTRIAL FURNACES

•

Automatic Water-Gas Controls
Hydraulically-Operated Valves
for Air, Gas, and Steam

•

The GAS MACHINERY CO.
CLEVELAND, OHIO

For Real Gas-purifying Power

CONNELLY IRON SPONGE

• To get top efficiency in gas-purification at the lowest cost, use Connelly Iron Sponge. It's the finest purification material to be had.

Connelly Iron Sponge has a high degree of activity. It gives longer service before fouling. It revivifies more quickly. Leading gas companies have been using this "blue-ribbon" purification material for years—they know it can be relied upon to do the best job.

If you have a problem in gas-purification, take advantage of Connelly's 71 years of experience. Our engineers will be glad to help you . . . there is no obligation. Consult Connelly!

CONNELLY IRON SPONGE & GOVERNOR CO.
Elizabeth, N. J. Los Angeles, Calif.
3154 S. California Ave., Chicago 8, Illinois

Large Volume Water Heating

A series of articles for the Engineer, the Architect, the Salesman and the Contractor.

They show how to select and install correct types of Water Heater Systems for specific purposes.

By

Malcolm B. Mackay

The Burkay Company

CHAPTER V

Part 2

Mass Feeding Hot Water Demand

Hot Water Requirement— Immersion Type Dishwasher

BASED upon the initial filling of both the wash and rinse compartments requiring approximately 60 gallons—one refilling of the wash compartment using an additional 40 gallons—and the 90 gallons required hourly for the constant flow, replacement rinse, the 140° water required for this type of dishwasher will be approximately 190 gallons for each full hour of capacity operation.

All water heating equipment intended to supply 180° rinse water to Spray Type dishwashing machines should accordingly be capable of supplying not only the *total* required number of gallons of 140° water *per hour* but must also be capable of supplying the 180° water at a *minimum* rate of flow of *5 gallons per minute* for single tank dishwasher, *4 gallons per minute* for two tank or Conveyor type machines or *2 gallons per minute* for Immersion Type dishwashers for a sufficiently vigorous, flushing rinse spray essential to the thorough elimination of the washing solution from the dishes or glassware—the destruction of harmful bacteria which survive the washing operation and, at the same time, heat the dishes or glassware or silver sufficiently to accomplish practically spontaneous drying without the necessity of toweling after emerging from the machine.

(1) The Hot Water Gallonage Factor of 1.37 gallons per person—per meal, reflects the total volume of hot water required at both *normal* temperature for general use and at *high* temperature for the final rinse sterilization of table ware after washing.

FIGURE 6

TO COMPUTE THE PEAK HOUR HOT WATER DEMAND —

IN GALLONS — FOR MASS FEEDING:—

1. Determine the Maximum Number of Persons served Per Meal.
2. Determine the Length - In Hours - of the Meal Peak or Dishwashing Period.
3. Multiply the Maximum Number of Persons served Per Meal by the Appropriate Gallonage Factor shown in Column "B" of the Table below on the Line indicating the Length of the Dishwashing Period —

-A- Where the Meal Peak or Dishwashing Period exists for —	-B- Multiply the Maximum Number of Persons Served by —
1 Hour	.75 Gallons
*1 1/2 Hours	.50 "
2 "	.38 "
2 1/2 "	.33 "
3 "	.30 "

The above Figures are based upon an Average Hot Water Consumption of 1.37 Gallons Per Person — Per Meal.

*Where Dishwashing Facilities are Adequate and Properly Laid Out to eliminate unnecessary handling and travel, the Dishwashing Operation should be accomplished in not more than one and one half hours.

(2) While the *peak Hour* hot water gallonage factor of .48 gallons per person—per meal previously indicated, is predicated upon the *meal* peak or dishwashing period existing for only 1½ hours, it must be recognized that the peak hour hot water demand will be *lower* if the *meal* peak exists for two hours or longer and the demand is spread over a longer period of time.

(3) From the above it will be apparent that the peak hour hot water demand for mass feeding may be estimated after determining the *maximum* number of persons served per meal *and* the duration—in hours—of the meal peak or dishwashing period.

A convenient method for estimating this demand is presented in figure 6.

Mass Housing

(1) The Hot Water Requirements of buildings designed for multiple housing and equipped with toilet and/or bathing facilities *must*, likewise, be interpreted in terms of *peak hour demand*—or the *maximum number of gallons of hot water* which will be required during a *single hour*—when determining the required capacity of the water heating system.

(2) Two factors must be taken into consideration when determining or estimating the *peak hour demand* for hot water which may be anticipated in such multiple housing:

(a) The Living Habits, or routine, of the occupants of the building. Work Schedules, Employment or Recreational routine would be the determining factor in this connection. If such routine of *all* of the occupants is identical, the demand for hot water during a given peak period would be at a higher level than would be the case if occupations were staggered to the extent that *less* than the total number of occupants would require or utilize the facilities of the building during a specific peak period or hour.

FIGURE 7

PEAK HOUR AND PER PERSON HOT WATER REQUIREMENTS OF MASS HOUSING

Type of Fixture	Persons Accomodated Per Hour	Maximum Gallons Required Per Peak Hour	Average Gallons Used Per Person	*Average Using Temp. Degrees F.	Average Time Used Per Person
-1-	-2-	-3-	-4-	-5-	-6-
Shower Heads**	8	216	27	105 (at outlet)	7 Minutes
LAVATORIES Morning Evening	4 6	18 18	4 3	110 110	15 Minutes 10 Minutes
BATH TUBS	4	48	12	105	15 Minutes
LAUNDRY TRAYS 1 Compartment 2 " 3 " (Personal laundering only)	3 3 2	45 60 50	15 20 25	120 120 120	20 Minutes 20 Minutes 30 Minutes

*To determine the Actual quantity of Hot Water, at a given temperature, which will be required — when mixed with cold water at a given temperature — to produce the required volume of Mixed or Tempered Water at the Using Temperature:
First - Compute the Total Volume of Water which will be required at the Using Temperature.
Then - Determine the Percentage of Hot Water which will be required by using the Following Formula.
Where A equals the Temperature of the Hot Water, in degrees F
B " " " " " Cold Water, in degrees F
C " " " " " Mixed Water, in degrees F

$\frac{C - B}{(A-C)+(C-B)}$ Will equal the Required Percentage of Hot Water.

For example — Where A equals 200° - B equals 100° - and C equals 150° — dividing C minus B (or 50) by the Sum of A minus C (or 50) Plus C minus B (or 50) reveals the fact that 50% of a 150 degree mixture will have to be 200 degree water if mixed with 100 degree water.

**Gallonage figures for Shower Heads are based upon a Rate of Flow of Water of 4 1/2 Gallons Per Minute. Where the Rate of Water Flow exceeds 4 1/2 Gallons per Minute it is suggested that an orifice be installed in the fixture to restrict the flow to this rate.

(b) The *number* and *type* of hot water consuming units or equipment installed in the building including Lavatories, Bath Tubs, Shower Heads, Slop Sinks, Hot Water Outlets for cleaning and, occasionally, Laundry Tubs or Trays. The average capacity and/or potential hot water requirement of each of the above is referred to in figure 7.

(3) The necessity for considering the co-relation of the living habits, or routine, factor *and* the equipment, or hot water outlet, factor, when estimating or determining potential *peak hour hot water demand* for housing of this type will be readily understood if it is remembered that the *number* of each type of fixture *restricts* or *limits*, the volume of hot water which will be required—during a *given, peak hour*—to the *total* of the number of gallons which will be drawn at *each* fixture in the course of *one hour of Continuous Use*. For example—4 Shower Heads, operating continuously, will accommodate approximately 32 persons *per hour* and require a specific number of gallons of hot water *per hour* regardless of the fact that the number of persons dependent on the four for bathing facilities may greatly *exceed* 32 in number.

(a) The *total* number of gallons which will be required to maintain continuous, or near continuous, use of the installed fixtures during a *given hour*, where the number of persons dependent upon the installed facilities can not be accommodated during a *single* hour, is accordingly the determining factor in computing or estimating *peak hour hot water demand*. Under such circumstances, the *peak demand* for hot water may *recur* during a *second* consecutive hour, or more, and the relationship of the recovery capacity and/or hot water storage capacity to peak hour demand should conform to those designated previously.

Peak Hour Hot Water Demand

(1) Since a water heating system having *sufficient capacity* to supply the maximum demand for hot water which will occur during the *greatest* peak hour will always be capable of supplying a *lesser demand* which may occur during any other hour of the day, it is necessary only to provide sufficient capacity in a water heating system serving a multiple housing unit to supply:—

(a) The Peak Hot Water Demand which will occur during *one* hour when *all* of the fixtures will be in *continuous* or near continuous use due to the facilities being inadequate to serve everyone dependent upon them for accommodation during a single hour.

Where this condition exists, i.e., where the number of persons to be accommodated exceeds the capacity of the available fixtures and these *must*, accordingly, be operated at or near their full capacity, the factors shown in column 3 of the table, figure 7, should be employed in determining the total, peak hour demand for hot water which will result from such *full time* operation. The maximum number of persons that can be accommodated by each type of fixture during a single hour—the number of gallons of hot water required *per person*—and the approximate, required temperature of the hot water will also be found in this table.

Note. Where the number of persons dependent on the available fixtures can not be accommodated during a single hour, the peak demand

may *recur* during a second consecutive hour, or more. If this condition exists, the relationship of the recovery capacity and/or the hot water storage capacity to peak hour demand, as shown above, should be considered when determining the required capacity of the water heating system.

(b) Or, if the *capacity* of the available fixtures *exceeds* the requirements of the number of persons dependent on them for accommodation during a single hour, it will be necessary to provide *only* sufficient capacity to supply the demand which will occur during *one* hour when *all* or approximately all of the persons will not require continuous or near continuous use of *all* of the fixtures. Where this condition exists, the *hourly load factor* of each fixture (percentage of the hour during which fixture will be in use) will be *lower* and the demand factor, covering the volume of hot water required per person for each type of fixture as shown in Column 4 of the table, figure 7, also may be employed in determining the *total peak hour demand* which may be anticipated.

Computing Peak Hour, Hot Water Demand

(1) To determine this requirement for Toilet Facilities which are an integral part of a building utilized for multiple housing where the number or capacity of the available fixtures is inadequate to serve all persons dependent on them for accommodation during a *single hour* proceed as directed below:

(a) First—Using the peak hourly demand gallonage factor for *each* type of fixture as shown in Column 3 of figure 7—compute the *total* hot water demand, at the *using* temperature, for *all* Fixtures used which will occur during *one hour* of maximum possible use.

(b) Next—Convert the resulting *total* number of gallons of hot water required as the *using* temperature to the equivalent number of gallons at the available, or *normal* supply temperature by means of the formula also provided in figure 7.

(c) Then—*discount* the resulting total number of gallons at the available, or normal supply temperature by 25%. The resulting figure, 75% of the number of gallons required by the fixtures if operated continuously, will be the *average, peak hourly demand—in gallons*—which *must* be anticipated and which the water heating system must be able to supply during a single hour.

Note. For information covering the extent to which the reserve of hot water in the storage tank of a water heating system may be used to meet a peak demand which may occur during a single hour or during two, or more, consecutive hours, refer to Section 1—of this Chapter.

(2) To determine the peak hour, hot water demand for Toilet Facilities where the capacity of the available fixtures *exceeds* the requirements:

(a) First — Determine the *maximum* number of persons that will use the available number of fixtures during a *single hour*.

(b) Next—Using the *per person*, gallonage demand factor for each type of fixture, as shown in Column 4 of figure 7, compute the total hot water demand at the *using* temperature which will occur during the hour of greatest possible use.

(c) Next—Convert the resulting *total* number of gallons of hot water at the using temperature to the equivalent number of gallons at the available, or *normal* supply temperature by means of the formula in figure 7.

(d) Then—Proceed as in paragraph 1-C.

(3) Where hot water will be required for Domestic Laundering during the period when the hot water demand originating from toilet fixtures will be at the *maximum*, the laundering demand should be determined separately and *added* to the peak hour demand from toilet facilities. The resulting figure will be the *total peak hour* hot water demand which the system will be called upon to supply. If the laundering demand does not occur simultaneously with other demand it may be disregarded unless it *exceeds* the peak hour hot water demand for other requirements.

(a) Where necessary to include hot water for Domestic Laundering with other demand it may be determined as follows:

Multiply the gallonage factor for *each* type of fixture, shown in column 3 of the Table, figure 7, by the number of fixture units if the fixtures will be in continuous or near continuous use for the full hour, or by the *per person factor* in column 4 if continuous use of the fixtures will not occur. The resulting figure will—in either case—be the Peak Hour Demand which must be supplied.

(b) Hot water for General Cleaning will rarely be required coincidentally with other demand. It is normally an Off-Peak Demand and need not be included when computing peak hour demand.

Get the FACTS
GAS HOLDER Inspection REPORT
STACEY
THIS REPORT ...may mean much to you.
Our Standard Inspection Report tells the actual condition—inside and out—of each gas holder examined. It gives you the hidden facts on where serious corrosion trouble may be brewing in your holders. It points out misalignments — their cause and best corrective measures. In short — it will save you money on your gas holder investment. Let us give you the facts.
The STACEY MANUFACTURING Co.
SINCE 1851
CINCINNATI 16, OHIO
GAS HOLDERS • HI-PRESSURE TANKS • PURIFIER BOXES
ENGINEERS • FABRICATORS • CONSTRUCTORS
An Independent Organization Not Affiliated With Any Other Builders of Gas Holders

RECENT COURT DECISIONS *Affecting Gas Utilities*

Unusual Law Suits

By
Leo T. Parker
Attorney at Law
Cincinnati, Ohio

RECENTLY the higher courts have rendered uncommon and unusual decisions involving injuries. We shall briefly review these interesting suits.

Damage Allowance

Considerable discussion has arisen from time to time over the legal question: What amount of damage may a gas company be compelled to pay for wrongful death of a wage earner?

According to a late higher court, in determining the amount of damages, evidence must be considered as the health, activity and occupation of the deceased, his earning capacity, and the various amounts which reasonably might be expected to be contributed by him for support of his family over the period he would furnish such support.

For example, in Emery v. Southern California Gas Company, 165 Pac. (2d) 695, reported April, 1946, the testimony showed that a person named Emery was employed by the Consolidated Steel Corporation as a pipefitter. In the course of such employment, he was removing a gasket from a hydraulic pressure pipeline in a gas plant, owned and operated by the Southern California Gas Company. While he was performing that work at a place about 16 feet above a cement floor, a large quantity of water, which was expelled from the pipe under high pressure, blew him to the floor and killed him. Emery's widow sued the gas company to recover damages. The lower court decided that the gas company was liable and the question presented the higher court was: What amount of damage should be allowed the widow and family.

During the trial it was shown that Emery was survived by a daughter 7 years of age, and 2 sons, 16 and 18 years of age. He had worked for Consolidated Steel Corporation approximately 7 weeks preceding his death and his monthly salary was approximately $600. At the time of his death Emery was 39 years of age, was in good health and very active. He had a life expectancy of 28.90 years, according to the American Table of Mortality.

The lower court held the gas company liable for $12,000 damages. The higher court reversed this verdict on the grounds that the damage allowance was inadequate. This higher court indicated that testimony should be introduced, upon which to base the damage allowance, showing that it would take over $34,000 at small interest to fully compensate the family.

This court said:

"The proposed evidence as to the present worth of future pecuniary loss was not conclusive evidence as to the amount of damages to be awarded."

Verdict Not Excessive

Usually, a higher court will approve a damage verdict rendered by a lower court, if such verdict is reasonably based upon the testimony.

For illustration, in Northwestern Transit, Inc., v. Wagner, 59 N. E. (2d) 897, it was shown that $2,500 damages was awarded by a lower court to a 21-year-old truck driver who was earning more than $20 per week. He sustained a cut on his chin, requiring four stitches, and a double fracture of the fibula which resulted in a permanent handicap. He was confined to a hospital for eight days and thereafter walked on crutches for about a month. The higher court approved the verdict, saying:

"We cannot say a verdict of $2,500 is so excessive as to induce a belief such a verdict was the result of prejudice, partiality or corruption."

Compensation Not Allowable

Modern higher courts consistently hold that the criteria of a compensable accidental injury are: First, was the employment one of the contributing causes without which the accident would not have happened; and second, was the accident one of the contributing causes without which the injury would not have been sustained. If so, the injured employe is entitled to receive compensation under the State Workmen's Compensation Act. Otherwise no compensation is allowable.

Thus, failure of an employe to *positively* prove that his injury occurred within the scope of the employment automatically forfeits his right to receive any compensation.

For instance, in Bouvier v. County Gas Company, 45 Atl. (2d) 894, reported May, 1946, an injured employe sued a gas company to recover compensation under the State Workmen's Compensation Act. He was employed by the gas company as an engineer and general laborer. In the early morning he was cleaning fires in a boiler when he suffered a coronary occlusion. He testified:

"I went to work at 11 o'clock on the night of the 25th and I had cleaned half of the fire, and there were very large clinkers on the back wall of the boiler. When I slammed the bar into those clinkers it bounced and struck me on the left side and paralyzed me, my left arm, my left side and chest."

The higher court refused to allow compensation, saying:

"No mention of the accident was made by the petitioner (employe) to anyone immediately after his heart attack; a coworker of petitioner (employe) accompanied him in the ambulance to a hospital and even after questioning obtained no history of an accident; upon admission to the hospital petitioner (employe) made no mention of an accident to the doctor who obtained his history."

Also, see Newhouse v. Phillips,

110 N.J.L. 421, 166 A. 482, where a heart specialist testified that an injured employe at his examination gave him no history of trauma. The higher court refused to grant the injured employe an award of compensation.

And, in Dane, 118 Atl. 708, an injured employe permitted his claim to lay dormant for almost two years before filing for compensation and in the meantime paid his own medical and hospital bills. In subsequent suit the higher court refused to allow compensation.

And in Schlegel v. H. Baron & Company, 34 A. (2d) 132, the higher court refused to allow compensation because of the injured employe's failure to tell his physicians, attending or otherwise, of his alleged accident.

Employe Worked for Several

Sometimes it is difficult to determine who is liable for payment of compensation for injury or death of an employe who works regularly for more than one employer. The jury must make this decision.

For example, in Texas Employers Insurance Ass'n. v. Felt, 150 Fed. (2d) 227, it was shown that a workman was killed while operating a tractor. No witness saw exactly what occurred, but the deceased was found pinned beneath his overturned bulldozer on a roadway. The truck used to haul the bulldozer from place to place was nearby, with the loading ramp attached.

The jury listened to this testimony and decided that the company which *paid* the employe to transport the bulldozer was liable as the legal employer. This decision was based upon the evidence that apparently the employe had driven the bulldozer from the truck just prior to his death.

Scope of Employment

An injured employe not protected by the State Workmen's Compensation Act may recover *damages* from the gas company *only* when the evidence proves that the injury resulted from *negligence* of officials of the company.

An employe may receive payment of compensation under the State Workmen's Compensation Act whether or not the injury was caused by the negligence of his employer if the injury was incurred "within the scope of employment." Otherwise no compensation is forthcoming.

For illustration, in Gory v. Monarch, 37 S. E. (2d) 291, reported May, 1946, it was shown that a number of laborers were engaged in "rounding up" a sand pile where the sand had become scattered. An employe stopped working and asked a stranger for a cigarette. When lighting the cigarette the employe was severely injured.

The higher court refused to allow the employe compensation under the State Workmen's Compensation Act. The court said:

"The claimant's accident was not due to anything connected with smoking but to an independent act of a third party."

On the other hand, see Landord v. Clinton, 204 S.S. 423, where compensation was allowed an employe for injuries sustained in a fight with a fellow employe because the origin of the fight was a controversy between the two employes over work being performed for their employer. This court said:

"Although an employe be wilfully assaulted by another, whether fellow servant, foreman or outsider, the resulting injury will be deemed accidental and within the terms of the Compensation Law when it can be said that the assault proximately resulted from the prosecution of the employer's business, and arose out of and in the course of the employment."

Dark, Foggy Night

Generally speaking, all operators of motor vehicles are expected by the law to keep their vehicles under such control that they can stop within the ordinary vision of the headlights. However, this rule is not applicable under unusual or extraordinary conditions.

For example, in Lone Star Gas Company v. Fouche, 190 S. W. (2d) 501, reported February, 1946, it was shown that a motor truck owned by a gas company skidded on a viaduct and was negligently left parked obstructing one-half of the road when it was dark, sleeting, misting and foggy.

A passenger car collided with the truck. After the driver got out he was struck by another automobile. He sued the gas company for damages.

In holding the gas company liable, the higher court said if the night had been bright the driver of the passenger automobile would not have been entitled to recover damages, since by the application of ordinary care he should have seen the parked truck in plenty of time to stop before occurrence of the collision.

Ordinary Care

A great majority of persons erronously believe that automobile drivers, when crossing a main highway or street, have the legal duty to make the crossing only when *no* vehicles having the right of way approach on the arterial highway. However, this is *not* so.

For example, in Le Bavin v. Suburban Gas Company, 45 Atl. (2d) 664, reported March, 1946, the testimony proved that the driver of a passenger automobile on a side road slowly approached a main highway. He stopped, looked in both directions and didn't see any cars coming. He started to cross the intersection in second gear at about twelve miles per hour. When he was more than three-quarters of the way across the intersection he saw out of the corner of his eye a gas company's truck bearing down on him at a "terrific rate of speed, very fast," he testified. A collision occurred, seriously injuring the driver of the passenger automobile who sued the gas company for damages.

During the trial the counsel for the gas company attempted to avoid liability on the contention that the injured driver was negligent because he failed to look to right and left when he was crossing the arterial highway. The higher court refused to agree with this contention. In holding the gas company liable, the higher court said:

"It is argued that if he had looked, the accident would not have occurred. It is recognized that reasonably effective use of the powers of observation by a plaintiff who is hit by an automobile may be made and yet the presence of such a vehicle not disclosed. His observation need not extend beyond the distance within which vehicles moving at lawful speed would endanger him. It was not necessary that plaintiff should be constantly looking to his right to ascertain if a vehicle was approaching."

Don't Prime Carbureter

It is customary to prime carbureters when starting "dead" internal combustion motors. It is *dangerous* practice.

For example, in Jolly v. Atlantic, 35 S. E. (2d) 42, it was shown that a truck rolled into a gasoline filling station with its motor dead, and stopped at the gasoline pump. The truck driver requested and obtained from the station attendant named Jolly some gasoline in a quart can. The driver asked Jolly to pour gasoline in the carbureter as he, the driver, operated the starter. Jolly leaned

over the motor and poured in the gasoline, as directed. When this was done there was an explosion in the motor, apparently what is commonly called "backfiring," and flames shot out and badly burned Jolly about the arms, upper body, head and face. He was immediately taken to a hospital where he was a patient for several months.

The higher court refused to award Jolly any compensation under the State Workmen's Compensation Act, but Jolly may sue the truck owner for damages.

High Speed

Obviously, a driver who crosses a street intersection at dangerously high speed is negligent and, therefore, liable for resultant injuries to others.

For illustration, in Davis v. United Gas Corporation, 191 S. W. (2d) 685, reported February, 1946, it was shown that a gas company sued the driver of a passenger automobile to recover damages to its motor truck. The gas company alleged that the driver of the passenger automobile was operating the car "in a reckless and dangerous manner and at a rate of speed in excess of 40 miles per hour."

Since the collision occurred at an ordinary street intersection the higher court held the gas company entitled to a favorable verdict.

Cow on Highway

Under all circumstances drivers of motor vehicles are legally obligated to give first consideration in preventing injuries to humans rather than animals.

For illustration, in Standard Oil Company v. Crane, 23 So. (2d) 297, reported December, 1945, it was shown that an occupant of a passenger car was instantly killed in a collision with a truck. According to all the eyewitnesses, the collision was caused by one of the vehicles striking a cow which was attempting to cross the highway.

The jury held the owner of the truck liable in $15,000 damages. The higher court approved the verdict because the testimony showed negligence on the part of the truck driver who failed to slow down when observing the cow.

Previous Injury

Recently a higher court held that if a person has in the past suffered from an injury, he cannot recover damages from a company for similar injury.

For instance, in Bailey v. Owen, 19 So. (2d) 299, it was shown that a person sued a company and alleged that he received injuries to his back and neck by reason of the negligence of the driver of a motor vehicle.

The counsel for the company proved that previously the passenger had "back trouble." In view of this testimony the higher court refused to hold the company liable in damages, and said:

"It is generally known that a person suffering from arthritis of the spine may be stricken suddenly with severe pain and a stiffness in the back without any unusual jar or strain."

Register of the Gas Industry British 1946 Edition

This annual, published by Gas Times of London carries a Directory Section of British Gas Associations, Officials and Gas Companies, some 200 pages of Technical Sections, a liberal advertising representation of manufacturers and a diary section for daily records and memos. Bound in cloth with stiff cover. Price per copy not stated.

A permanent pipe repair in 10 minutes with this handy *Ready-Pack Sleeve*

Here's a "packaged repair" that permits one man, using only a wrench, to make a permanent repair on cast-iron pipe in 5 to 10 minutes, regardless of weather or location.

The Dresser Ready-Pack Sleeve (Style 80) is a factory-built unit that comes to you completely assembled and equipped with a handle for easy carrying to the job. It's light in weight, low in cost. It makes permanently gas-tight repairs of holes, breaks or splits in the line. Sizes 3" to 8". Repairs pipe deflected up to 4° or offset as much as 5/8". Resilient gaskets provide flexibility, guard against recurrence of break. Write for information.

DRESSER MANUFACTURING DIVISION, BRADFORD, PA.
Houston Office and Warehouse, 1121 Rothwell St., Sec. 16, Houston, Texas. In Canada, Dresser Manufacturing Co., Ltd., 60 Front St., West, Toronto, Ontario.

DRESSER READY-PACK SLEEVES
ONE OF THE DRESSER INDUSTRIES

Range Demonstrations for Dealers by Equitable Gas Co.

MEETINGS such as pictured here were held in the Equitable Gas Company's auditorium in their newly remodeled building in Pittsburgh, being one of a series held throughout the Tri-State Area, comprising the Pittsburgh, Cleveland, Youngstown and Wheeling districts.

A hundred dealers and their clerks and wives attended the training demonstration in Pittsburgh. For experienced salespeople, the meeting constituted a refresher course; for new salespeople, a complete school on the features of gas cooking.

These dealer demonstration sessions are a resumption of similar meetings held prior to the war and have now been altered to include the latest and most approved methods of food preparation, as well as a practical demonstration of the features of the Tappan range. The program of the Pittsburgh meeting is typical of the other sessions held throughout the country.

After suitable greeting and introductions by H. C. Givan, Jr., Equitable Gas Company's Sales Promotion Manager, the first part of the school was conducted by the manufacturer's representatives, E. T. Prendergast, Karl E. Weller, George M. Yeingst and Arthur M. Probst.

Following the regular program, a buffet supper was served, which included all of the tempting dishes prepared in the demonstration. During the supper, dealers, Tappan men, and Gas Company representatives enjoyed pleasant discussions in a social atmosphere.

To brush up the dealers' sales technique, Arthur M. Probst discusses the fundamentals of the sale of any good product.

The Pittsburgh meeting was held in Equitable Gas Company's new auditorium. H. C. Givan, Sales Promotion Manager, welcomes the dealers.

SUPERIOR GAS METERS

For Sound Values and Continuous Operating Economy

Meters for Domestic and Industrial Use. All Sizes 5B to 60C.
Wet Test and Demonstration Meters — Diaphragms —
Service Cleaners — Provers — Meter Repairs

Write for details and quotations

SUPERIOR METER COMPANY, INC.

167 41st Street Brooklyn, N. Y.

Gas Burning Furnace Ordinance Adopted in Los Angeles

RULES and Regulations pertaining to gas burning warm air furnaces, warm air heaters and boilers, and construction and performance requirements for such units, have been adopted by the city of Los Angeles in ordinance form to serve as interim regulatory provisions pending the completion and adoption of a comprehensive Municipal Heating and Ventilating Code which has been under preparation for more than two years.

The general terms of the interim regulations* provide that every warm air furnace, warm air heater and boiler which is arranged or installed to burn gas for fuel shall conform to ordinance requirements and shall be of a type and construction approved by the Municipal Board of Building and Safety.

Section 95.601 provides that every gas burning warm air furnace and floor furnace, other than a duct furnace, shall conform to the construction requirements and meet the performance requirements as published in the American Standard Approval Requirements for Central Heating Gas Appliances Standards Z-21-13 for the year 1936, 1938, 1940, 1942 or 1943.

In respect to duct furnaces, the interim regulations provide that every such furnace shall conform with the construction and performance requirements of the ASAR for gas fired duct furnaces, Standard Z 21.34-1942.

The ordinance provides that every Type 1 warm air furnace shall be constructed and insulated so that the maximum temperature of any portion of the furnace exterior casing, except the necessary firebox opening or openings, shall not exceed 90 Deg. F. above the ambient temperature when such furnace has been operating conitnuously for not less than three hours at the approved B.T.U. output ratings; and that the ambient temperature shall be the average air temperature measured at three or more locations not less than five feet from the furnace and 3½ feet above the floor of the furnace enclosure.

* *See also article, H. W. Geyer, American Gas Journal, June 1946, p. 38.—Ed.*

Warm Air Heater Rules

The ordinance provides that every warm air heater, other than a floor furnace and a unit heater shall conform with construction and performance requirements set forth in American Standard Approval Requirements for Gas Space Heaters, Z-21.11-1936, 1940 or 1942; and unit heaters to Z-21.16-1940.

The ordinance provides that the vent outlet of every gas pressure regulator which is a portion of any gas burning furnace, heater or boiler regulated by the ordinance shall be connected to a discharge pipe extending into the fire box of the appliance such regulator serves.

Part 8, Sections 95.800 and 95.801 cover location and installation of warm air furnaces.

It prohibits the installation of a warm air furnace in any bedroom, bed closet, clothes closet, bathroom, garage, public rest room, or in any room less than 50 square feet in floor area having a doorway directly into any bedroom or clothes closet. Prohibited also are the installation of warm air furnaces in locations defined by the code as hazardous, nor in a surgical operating room, or in such manner that the temperature of any adjoining flammable portion of a building will exceed 120 Deg. F. above the ambient temperature of any time the furnace is in operation at its approved B.T.U. input rating.

The ordinance sets forth that every furnace enclosure shall be not less than six feet in width and 48 square feet in area, with a ceiling height of not less than seven feet.

The provisions on furnace enclosure ventilation call for every room or space in which a warm air furnace is located to have an air opening or openings of not less than 200 square inches net area, plus 100 square inches area for each blower-type warm air furnace in excess of one in the room, plus 200 square inches area for each gravity-type warm air furnace in the enclosure.

The ordinance permits the installation of warm air furnaces on the roof of a building used for commercial assembly, commercial or industrial purposes, if not in violation of any other ordinance section, but not on the roof of any Group D or Group S Occupancy.

Furnace Venting Provisions

It is required under the interim ordinance that every gas burning warm air furnace shall be connected to a vent connection and vent complying with the requirements of Part 13 of the ordinance, or to a chimney complying with the requirements of the city building code. Any warm air furnace burning any other fuel than gas must be connected to a smoke pipe and chimney complying with minimum requirements set forth in the ordinance.

The B.T.U. output rating of any gravity-type warm air furnace, according to the ordinance, shall not exceed 200 times the total cross sectional area in square inches of an warm air ducts connected thereto, nor more than 200 times the total cross sectional area of all circulating air supply ducts or openings to the furnace, unless the furnace is equipped with an approved device which will limit the temperature in any warm air outlet from the furnace to not more than 250 Deg. F.

The ordinance provides that gravity-type heating systems which are not equipped with an approved device which will limit the temperature of the air from any outlet to not more than 250 Deg. F., shall be provided with at least one warm air outlet having an area of not less than 50 square inches, which shall be open at all times the furnace is in operation.

Warm Air Heater Installation

Installation of a warm air heater in any Group E, F or J Occupancy is prohibited by the ordinance, except in an office stock, wash, storage or display room in Group F or J Occupancies.

Prohibited also is the installation of a warm air heater with a B.T.U. input rating in excess of 80,000 B.T.U. in any room defined as an assembly room by the City Building Code.

Part 12, which deals with air ducts, provides that every duct and plenum chamber which is a portion of any warm air heating or ventilating system regulated by the ordinance shall be constructed of bright tin, galvanized iron or one-hour fire-resistive construction complying with provisions of the Los Angeles Building Code. Certain exceptions are made.

The ordinance also provides that all exposed portions of the exterior surface of warm air ducts shall be covered with not less than the number of layers of one-fourth inch thickness air cell asbestos paper as specified (below) for the total length of the duct measured from the warm air outlets on the furnace connected thereto:

1—Not more than 20 feet total length, 1 layer

2—More than 20 feet total length, 2 layers

3—More than 40 feet total length, 3 layers

The ordinance also provides regulations for the area of lateral heat pipes in gravity heating systems, length and rise of lateral heat pipes and area of riser pipes.

On circulating air supply for forced air heating systems, the measure provides that the circulating air supply for such systems shall be through a metal or masonry duct extending continuously from the blower fan for the system to any of the following locations:

1—The outside of the building.

2—Any room or space outside the furnace room and which is served by the heating system, or from any location open at all times to any such room or space.

Vents for Gas Appliances

The general provisions for vents and vent connections for gas burning appliances stipulate that every chimney flue, vent or vent connection for the discharge of products of combustion from any gas burning appliance shall comply with the chimnew construction requirement of the Los Angeles Building Code, or shall comply with the requirements of Part 13 of the ordinance, which defines permissible vent construction practice, vent material, etc.

Part 13 provides that every vent and vent connection shall have a cross sectional area of not less than seven square inches and not less than the area set forth in the following table for the sum total of the maximum B.T.U. input rating of all gas appliances connected thereto:

Sum of Maximum Gas Input Ratings of All Gas Appliances	*Minimum Internal Diameter of Round Pipe*	*Minimum Internal Cross Sectional Area of Vent Pipe*
20,000 B.T.U.'s	3 inches	7 square inches
65,000 "	4 "	12½ " "
100,000 "	5 "	19½ " "
150,000 "	6 "	28¼ " "
200,000 "	7 "	38¼ " "
300,000 "	8 "	50¼ " "
380,000 "	9 "	63½ " "
480,000 "	10 "	78½ " "
580,000 "	11 "	95 " "
680,000 "	12 "	113 " "
930,000 "	14 "	154 " "
1,200,000 #	16 "	200 " "

Exceptions to the above vent-area regulations are that any gas appliance having a combined gas input rating in excess of 1,200,000 B.T.U.'s per hour shall be vented to a chimney conforming with the requirements of the city building code; that the least internal dimension of any vent or vent connection shall be not less than two inches; that a square vent or vent connection may be used if the least internal dimension is not less than that required for a round vent or vent connection; and that any rectangular or oval vent or vent connection shall have an area of not less than the minimum size set forth in the ordinance, provided the maximum internal cross sectional dimension of the vent pipe is not more than two times the minimum internal dimension.

Book Review

What Price Supervision—by R. D. Bundy. 6½ x 9½ inches, 46 pages, hard fabrikoid cover, spiral-bound. $2.00 F.O.B. Shipping Point. Publication Date: May 1st, 1946. National Foremen's Institute, Inc., Deep River, Conn.

This small volume is a challenging treatment of management's key problem. The author discusses frankly the short-comings of present-day supervision, the dangerous gap between fine-sounding theory and outmoded practice.

Although the author pulls no punches in lambasting typical supervisory faults, his criticism is constructive.

It offers a definite program, and presents specific suggestions for attaining the type of supervision necessary for the price-tough era ahead.

The book is easy to read, and filled with practical, thought-provoking material. Section I presents the various aspects of the supervisory problem: Pattern of Management-Foremen Relations, Views on Supervision, Outworn Policy, Measure of Leadership, Two Problems—Secure and Develop, Philosophy of Long Standing, Case Histories, Factual Data on Foremen's Education, Education VS Experience.

Section II, offers a definite solution and covers: What is Supervision, Well-Balanced Supervision, The Foreman Who Gets Things Done.

The author is Industrial Coordinator of the Board of Education, City of Cleveland. He is also a management engineer, with extensive knowledge of supervisory practice gained from over 20 years' experience with many large companies as executive and consultant on supervisory problems.

His book will undoubtedly be a definite stimulus to executive thinking. It may well prove to be more than that, for Mr. Bundy charts the way ahead for supervision down the line from top management to subforeman.

Gas-Diesel Engines. Bulletin L.51 issued by Cooper-Bessemer Corp., Mount Vernon, Ohio, gives specifications of their Type L.5, 6, 7 and 8 cylinder stationary units with cross section and space diagrams and rating curve.

New Equipment

Pipe Locator

A new Pipe Locator developed by Hugo Walquist of Ebasco Services is manufactured by Nilsson Electrical Laboratory, 103 Lafayette Street, New York 13, N. Y. Compactness and light weight are outstanding features.

Model 112 Transmitter and Receiver

The instrument consists of a transmitter unit and a receiver unit. The transmitter unit is used to supply a test signal to the pipe or conduit, and remains stationary. The receiver unit consists of an internal pickup coil and battery operated three stage amplifier delivering its output into headphones. The pipe is traced by the signal picked up in its vicinity.

After the precise location of the pipe has been established, its depth can then be determined. Mark the exact spot above the pipe, and then hold the receiver at a 45 degree angle to the ground. Move it out away from the line at a right angle to its length, close to the ground and mark the point at which the signal is again weakest. Measure the distance between the marks, and this will also be the depth of the pipe beneath the first mark.

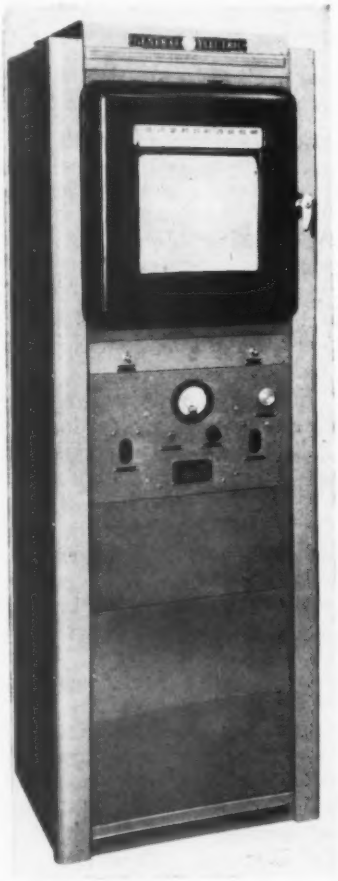
Transmitter and Receiver units are contained in walnut cabinets with suitable carrying handles. The carrying case is constructed of 3/8" plywood with steel corners and a sturdy steel catch. It has four compartments lined with felt, and spaced to hold the units snugly.

Thermal Gas Analyzer

A new thermal gas analyzer, Type TB, for continuously recording or indicating the concentration of one component of mixed gases whose characteristics can be detected by the thermal-conductivity principle, has been announced by the General Electric Company. The wide range of gases and gas concentrations. It can detect impurities in hydrogen, carbon dioxide, sulphur dioxide, or any one of many organic vapors, provided the impurity has a different thermal-conductivity from that of the gas being analyzed.

Gas analysis is registered on any standard indicating or recording instrument, which can be equipped with contacts for closing an alarm circuit when the concentration reaches a preset maximum or minimum value. In addition, these contacts can be used to control circuits for valves or motors in order to maintain the gas concentration within certain limits.

The new instrument features high sensitivity, rapid response to gas changes, and sealed-in reference gas for reliable operation. The cell clock is thermostatically controlled to prevent temperature errors. The analyzer is mounted in a cabinet or panel and is designed for permanent installation.



Type TB Gas Analyzer

Molded Meter Diaphragm

A new and vastly improved *molded* gas meter diaphragm has been perfected by Vulcan Proofing Company, First Avenue at Fifty-Eighth Street, Brooklyn 20, New York. This new development, the result of more than seven years of research, is perfectly smooth and uniform in contour, and completely eliminates the old meter shop process of fluting and crimping. No tie-

OLD NEW

ing on with cord is necessary, for the new Vulcan loop comes securely attached to the rings by means of special wire, fastened without knots. The streamlined contour of the new loop forms a natural "hinge", molded in for uniform flexibility all around the circumference. This affords more sensitive operation, reduces differential pressures and thus makes for more accurate metering.

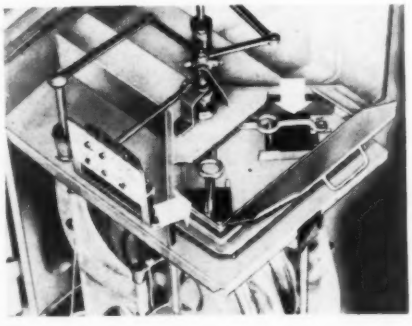
It is claimed that this improved diaphragm virtually ends the possibility of tie leaks. The seam is vulcanized rather than stitched, affording a more positive seal at this point.

Complete details are obtainable from the meter companies or direct from Vulcan Proofing Company, the manufacturer.

and Appliances

Gas Meter Valves

An improvement in gas meter valve operation is claimed for Morganite "no-drag" valves. They are constructed of carbon-graphite, a material offering outstanding advantages in this and similar applications.



Application of "No-Drag" Valves

Chief advantages claimed are self-lubricating characteristics that lengthen the life of both the valve and mating surface, immunity to chemical attack, dimensional stability that provides dependable accuracy and complete freedom from gumming, sticking or warping and quiet operation. Also that they eliminate "DPG" meters due to valve freezing or broken wrist pins.

They are supplied in slide or circular motion types for all makes of meters. Complete details or descriptive literature sent on request by Morganite, Incorporated, 3304 48th Avenue, Long Island City 1, New York.

New "Quality" Range

The latest addition to the Quality Gas Range line has just been placed in production at Roberts & Mander Corporation's, Hatboro, Pa., plant. This range, Model L-450, is the answer to requests for a 36" range having all the advantages of the famous "Centra-Cook Top'.'

Model L-45D

This model features flush-to-wall design, a modern twin-lamp, minute-minder, and condiment-set ensemble, and a full size 20" oven.

In spite of the small floor-space required, not a single convenience feature has been overlooked. It has complete blanket insulation of oven and broiler, accurate oven heat control, and many "extras" such as a handy lid rack to eliminate the usual groping for utensil lids in the storage compartment.

Oxygen Recorder

An automatic continuous analyzer for indicating and recording the Oxygen content of a gaseous mixture has been developed by Bailey Meter Company, Cleveland 10, Ohio. This instrument has been successfully applied to boiler furnaces, kilns, many types of metallurgical furnaces, glass tanks, chemical and petroleum processes.

The instrument provides a graphic analysis almost instantly, and is said to be responsive to changes of .05% oxygen. Sustained accuracy is said to be within .25%.

A continuous gas sample is mixed with a vaporized liquid fuel and burned on a catalyst-filament which reaches a temperature proportional to the Oxygen content. The filament resistance is a function of temperature and a simple resistance bridge is connected to a null balance electronic recorder which may be calibrated in Excess Air, Per Cent Oxygen, or other desired terms.

Applied to all types of furnaces operating with oxidizing atmospheres, they permit closer regulation of fuel-air ratios, especially where multiple fuels are used, or where the firing rate changes rapidly.

The high speed of the instrument makes it ideally suited for traverse studies, and other types of test work, as well as continuous day to day operation.

Applications of the "Rivnut" For Appliance Assembly

New applications of the Rivnut, a blind fastener which can serve either as a rivet, nut plate, or both in several industrial fields are reported by The B. F. Goodrich Company, Akron, Ohio.

An interesting application has been made on gas ranges where underwriters regulations demand a double wall at the back so air can circulate to reduce hazards. Complicated fastening devices have been used where this wall is attached around the chimney or flue, and a Rivnut with a ½" spacer head simplified the problem.

In the refrigeration industry, 8-32 aluminum Rivnuts are used to fasten an extruded plastic strip for holding shelf to porcelainized metal. Advantages are labor-saving during installation and for maintenance, since it is not now necessary to take out the entire wall; the Rivnut does not chip the porcelain and the closed end type gives satisfactory installation.

Another refrigeration use is to fasten brass hinges of a large door for a commercial 160 cubic feet room-size refrigerator. Brass Rivnuts, size ¼—20 with 9/16" high spacer head are used.

Furnace Door Spring

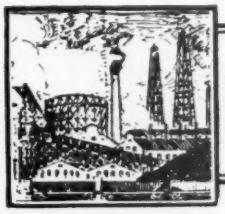
This furnace door closing device, designed for conversion burners, automatically closes the fire door of a boiler or furnace if it should be blown open.

Application of Door Spring

It consists of a cadmium plated door hinge pin, spring and wedge. The hinge pin replaces the regular fire door pins, and spring furnishes the motive power and the slotted wedge holds the fire door in the open position when required.

Furnished in 3/16, ¼, 5/16 and ⅜" sizes.

Made by Inland Manufacturing Co., 1122 N. Cicero Ave., Chicago, Ill.



News of the Gas Industry

A. G. A. Convention at Atlantic City Geared To All-Time Record

The Twenty Eighth Annual Convention of the American Gas Association at Atlantic City, during the week of Ocotber 7, promises to reach new high levels in entertainment and educational value, as well as in attendance, Irving K. Peck, Chairman of the Convention Committee and Vice-President and General Manager of the Manufacturers Light and Heat Company of Pittsburgh, reports. The program is being carefully arranged, with every possible consideration being given to effect a proper balance of subjects of wide industry interest so that every member present will benefit through attendance at the Convention.

On Monday morning, October 7, the Manufactured Gas Department will meet at the Traymore Hotel and the Natural Gas Department in the Claridge Hotel. In the afternoon an Employee Relations Forum will be held in the Auditorium.

General Sessions will be held in the Auditorium on Tuesday and Thursday mornings. Another General Session with entertainment features and two general addresses of interest to the delegates and their wives and the presentation of general awards will be held on Wednesday evening.

The Industrial and Commercial Gas Section will open its Convention activities with a luncheon meeting at the Traymore on the 8th, and will hold another meeting at the Traymore Hotel on the afternoon of the 10th.

The Residential Gas Section will hold its meetings in the Auditorium on Wednesday Morning and Thursday Afternoon.

The Home Service Breakfast, a popular feature of many past Conventions, will be held at the Traymore Hotel on the 9th, and a Home Service Round Table will be conducted at the Claridge Hotel on Tuesday afternoon, the 8th.

The Accounting Section is planning a General Session on Tuesday Afternoon and General Accounting and Customer Accounting Sessions on Wednesday Morning at the Ritz Carlton Hotel.

The Technical Section will hold three sessions—all at the Ambassador Hotel Tuesday Afternoon, Wednesday Morning, and Thursday Afternoon.

Friday, is being reserved for miscellaneous meetings, including committee meetings, which may be available. Every effort is being made by the Convention Committee to avoid conflict of meetings so that the gas men and women may attend all the meetings in which they have an interest.

The programs for the General Sessions to be held in the Auditorium Tuesday Morning, Wednesday Evening, and Thursday Morning, are being arranged by the Convention Committee of which Irving K. Peck is Chairman. The Personnel Committee, of which Fred R. Rauch, Vice President, The Cincinnati Gas and Electric Company, is Chairman, is arranging the program for the Employee Relations Forum to be held in the Auditorium on Monday Afternoon. Mr. Rauch has appointed a subcommittee on this assignment consisting of R. S. Child, Central Hudson Gas and Electric Corporation; Gordon M. Peterson, Public Service Electric and Gas Company; L. M. Ayers, The Peoples Natural Gas Company; C. G. Simpson, The Philadelphia Gas Works Company and D. S. Sargent, Consolidated Edison Company of New York.

Manufacturer interest in the Exhibit of Gas Appliances and Equipment is running high, according to Harold Massey, Assistant Managing Director of the Gas Appliance Manufacturers Association. Upwards of 112 exhibitors have already signed up for space which exceeds the maximum space taken at any previous Exhibit in Atlantic City. When the Exhibit opens at 10:00 o'clock on Monday Morning it is anticipated it will be the largest and best Exhibit ever held by the gas industry.

Sketches submitted by exhibitors indicate exceptionally beautiful booth layouts and considerable ingenuity in the preparation of attractive backgrounds. Servel, Inc., will again occupy the entire huge stage and has planned an outstanding display.

President E. J. Boothby has announced the appointment of a carefully selected Entertainment Committee with A. J. Gonnoud, President of the Kings County Lighting Company of Brooklyn as Chairman, and the following members: Bernard T. Franck, Milwaukee Gas Light Company; Raymond J. Vandergriff, The Lacledo Gas Light Company; Earl Fisher, Pacific Public Service Company; Hudson D. Carmouche, Houston Pipe Line Company; Earl Smith, Atlantic City Gas Company; C. G. Young, Springfield Gas Light Company; O. H. Ritenour, Washington Gas Light Company; C. S. Stackpole, Consolidated Gas Electric Light and Power Company of Baltimore; C. E. Bartlett, Bartlett & Company, Inc.; W. G. Murfit, Philadelphia Gas Works Company; W. S. Guitteau, American Meter Company; M. J. Harper, Rockwell Manufacturing Company; Louis R. Quad, Public Service Electric & Gas Company. Eugene D. Milener of the A.G.A. Headquarters Staff is the Secretary of the Entertainment Committee.

Charles G. Young, Manager, Springfield (Mass.) Gas Light Company, is to be the guest speaker at the Atlantic City Kiwanis Club, Thursday, October 10. Mr. Young will speak on the future of the gas industry.

CONVENTION CALENDAR

September

9-11 *Sixth Annual Appalachian Gas Measurement Short Course,* West Virginia University, Morgantown, W. Va.
10-12 *Pacific Coast Gas Association,* Annual Convention, Fairmont Hotel, San Francisco.
12-13 *Midwest Industrial Gas Council,* The Radisson Hotel, Minneapolis, Minn.
20 *Oklahoma Utilities Assn.* Gas Division, Annual Fall Meeting, Biltmore Hotel, Oklahoma City.

October

7-11 *American Gas Association,* Annual Meeting, Atlantic City, N. J., Convention and Exhibition.
7-11 *National Safety Congress* and Exposition, Stevens Hotel, Chicago.

November

18-22 *National Metal Congress* and Exposition, Atlantic City, N. J.

December

2-6 *Amer. Soc. Mechanical Engineers,* New York.
2-6 *National Exposition,* Power and Mech. Eng'g., Grand Central Palace, New York.

1947

March

20-21 *New England Gas Association,* Annual Meeting, Boston, Mass.

George W. Baldwin Appointed to Pacific Post for Roper

George W. Baldwin took over on July 1st the post of Assistant Manager of the Pacific Coast Division, Geo. D. Roper Corporation. He will work wtih T. H. Hall, Roper's Pacific Coast Division Manager.

After performing the duties of Chief of the Appliance Unit, Plumbing and Heating Division of W.P.B. during the war, he returned to Rockford as Sales Manager.

Program of the Pacific Coast Gas Association Convention

The Annual Convention of the Pacific Coast Gas Assn. will be held in San Francisco, Sept. 10, 11 and 12.

The first day of the meeting will be devoted to the national situation. Leigh Whitelaw and Harold Massey will represent the Gas Appliance Manufacturers Association, and R. H. Hargrove, First Vice President and presidential nominee of the American Gas Association, will lead a group of speakers who together will cover all aspects of current A.G.A. activities including research and promotion.

H. Vinton Potter, Director of The New Freedom Gas Kitchen Program, will be one of the A.G.A. team, and on Wednesday morning the program will go into detail on domestic gas cooking promotion. Supplementing Mr. Potter's introduction, Servel, Inc., will present its New Freedom Gas Kitchen. R. J. Canniff, Promotion Manager of Servel, will lead the demonstrating group. Carl Sorby, Vice President of Geo. D. Roper Corporation and Chairman of the C. P. Range Manufacturers' group, will tell the latest news of C. P. Ranges, and will outline a powerful plan for the promotion of automatic gas cookery.

On Wednesday afternoon P. R. Gros, Chairman of the Association's Advertising Committee, will introduce "The Miracle Flame," a new sound motion picture in color, developed jointly by the Advertising Committee and the Sales Training Committee of the Sales and Advertising Section.

The greatest event in the recent history of the California gas business is the Texas pipeline. Its economic and technical features will be described in considerable detail in an illustrated talk by A. F. Bridge, Vice President and General Manager of the Southern Counties Gas Company. The California natural gas story will be rounded out by Roy Wehe, Assistant Director of Public Utilities of the California Railroad Commission, who will discuss natural gas reserves.

Wednesday will also be featured by a Home Service Breakfast to be held before the morning general session, and a Home Service Roundtable in the afternoon.

The Thursday morning session will deal with the toughest problem facing all business—the relation between employer and employee. Some of the basic principles of successful relations will be demonstrated by Judge Irvin Stalmaster, a prominent Industrial Relations Consultant, and a group of assistants.

Another phase of the employee relationship is adequate training. Two examples of employee-training will be demonstrated: One, a telephone order-clerk; and the other a retail gas-range salesman.

On Thursday noon there will be a luncheon meeting of Women's Committee representatives from member companies.

Thursday afternoon will be devoted to separate meetings of the Accounting, Sales, and Technical Sections.

For an hour each day, following the adjournment of afternoon meetings, the Manufacturers Section will be host to Convention delegates.

The General Nominating Committee will make the following nominations at the Convention.

For President—LeRoy M. Edwards, Vice President-General Manager, Pacific Lighting Corporation.

For Vice President—A. H. Sutton, President, Mission Appliance Corporation.

For Treasurer—D. G. Martin, General Auditor, Pacific Gas and Electric Company.

Gas Short Course at A & I, Texas

Emphasis will be placed on natural gas transmission facilities and industrial utilization during the short course on gas technology scheduled for the Texas College of Arts and Industries campus in Kingsville, Texas, August 27, 28, and 29.

The course, offered by A&I, will be sponsored by the Southern Gas Association, according to Dr. Frank H. Dotterweich, A&I engineering department head, who has been named chairman of the administrative committee. He and Robert R. Suttle, managing director of the 13-state association, outlined the meeting.

Both students and members of industry will attend.

Dr. Dotterweich is recognized nationally as an authority in the natural gas engineering field. He worked during the war in Washington as a consultant in the Natural Gas and Natural Gasoline Division of the Office of Petroleum Coordinator for War.

Instructors for the course will be industrial experts and A&I faculty members. Dr. E. N. Jones, A&I president, is appointing an advisory committee from industry.

Dr. W. G. Hugly, assisted by Robert Hutchison of Houston, research director of the Houston Natural Gas Corporation, is arranging the program on dehydration of foods and wood; Larry L. Ladewig is in charge of air conditioning; Elton Sterrett is scheduling speakers for the transmission portion; and R. B. Suttle, who helped outline the course, has been acting as liaison between the college and industry.

Members of the A&I staff who will serve as instructors are Noel C. McGuire and Emerson Korges, engineering department instructors; Durward Emery and Alfred Lehmberg, both research fellows. Emery and Lehmberg, graduates of natural gas engineering now working on masters' degrees in physics, are this year's recipients of the Chicago Corporation fellowship, awarded to outstanding students doing research work in subsurface engineering.

Other lecturers and instructors for the course are being selected from industry.

Twelve hours will be spent in classroom and laboratory instruction, and two general assemblies are scheduled. In addition, there will be trips to gas fields and cycling plants in the vicinity and demonstrations of late-type equipment owned by the college. Situated in the Coastal Plain Belt, A&I is in a region offering a great diversity of oil and gas engineering problems. The college's gas laboratory is one of the best equipped in the nation.

Delegates will tour part of the great King Ranch under the auspices of the Kingsville Chamber of Commerce, whose members are also sponsoring a barbecue.

Olson and Young Elected to Columbia Gas Board

H. Edwin Olson and George S. Young, directors of The Manufacturers Light & Heat Co., have been elected to the board of directors of Columbia Gas & Electric Corp.

In making this announcement, Stuart M. Crocker, president, stated that Mr. Olson is financial vice president of Columbia Gas & Electric Corp. and Mr. Young is vice president of Columbia Engineering Corp., a subsidiary service company.

Mr. Olson became affiliated with Columbia in 1928 and subsequently served as assistant treasurer and treasurer before he was named financial vice president in 1941. He is also a director of Columbia Engineering Corp., the Ohio Fuel Gas Co., Columbus, and of the United Fuel Gas Co. Charleston.

Mr. Young joined the Columbia organization as a junior engineer in 1930, and became vice president and general manager in 1936 of the onetime subsidiary, Michigan Gas Transmission Corp. In 1942 he was elevated to the engineering corporation's vice presidency. Mr. Young is also a director of the other natural gas companies in the Pittsburgh Group of the Columbia Gas System.

Liquid Petroleum Gas Assn. Elects Officers for 1946-7

At the annual meeting of L.P.G.A. held in Colorado Springs, officers of the Association for this ensuing year were elected as follows:

President: Charles O. Russell, Thermogas Co., Inc., Des Moines, Iowa.

1st Vice President: L. V. Rothrock, Liquid Gas and Appliance Co., Twin Falls, Idaho.

2nd Vice President: W. B. Wight, Consumers Gas Co. of Georgia, Inc., Albany, Georgia.

Vice President: Tallent H. Ransome, Ransome Company, Emeryville, California; F. N. Mabee, Colorado Natural Gas & Fuel Co., Denver, Colorado; Walter A. Naumer, Carbide & Carbon Chemicals Corp., New York ity, New York.

Executive Vice President: Howard D. White, LPGA, Chicago, Ill.

Vice President Technical Division: F. R. Fetherston, LPGA, New York City, New York.

Treasurer: B. D. Geroy, Illinois Bottled Gas Co., Chicago, Illinois.

Secretary and Assistant Treasurer: Arthur C. Kreutzer, LPGA, Chicago, Illinois.

Charles Russell, the new president, closed the meeting with a high tribute to past President Ernest Fannin.

During the convention, 26 new members joined LPGA.

Finance Plan for Appliance Sales Through Dealers

Anticipating a return to time payment buying by the public, Consolidated Edison Company of New York, Inc., has arranged a new standard finance plan for the purchase of gas and electric appliances and equipment by its customers through authorized appliance dealers, according to an announcement by Brigadier General Ephraim F. Jeffe, vice-president in charge of sales.

Scheduled to go into effect on July 15, the time payment program is designed to function at an average annual finance charge of $4.88 per $100. It will be available at any of the Consolidated Edison showrooms or at any of the company's Cooperating Appliance Dealers' stores, of which there are 224 in Manhattan, 131 in the Bronx, 277 in Brooklyn, and 179 in Queens.

Up to the morning of June 28, eighteen banks and one finance company had agreed to participate in the time payment plan. Others have signified their intention to join the program.

Indoor Climate Institute Plans Special Summer Meeting

At a Board of Directors meeting of the Indoor Climate Institute, held on June 18, 1946, at the Book-Cadillac Hotel, Detroit, plans for the Institute's activities for the coming year were discussed and approved. In order that the entire heating industry may receive first hand an outline of the plans of the Institute's 1947 operation, invitations are being prepared for a meeting to be held in the Italian Gardens of the Book-Cadillac Hotel, the morning of August 15, 1946, at which time these plans will be outlined to presidents, secretaries, managing directors and chairmen of publicity committees of all trade associations in every branch of the heating industry, as well as representatives of trade and shelter magazines. Detailed announcements of the meeting will be made subsequent to August 15th.

The Institute approved publication of a consumer booklet, "Look Under the Hood," telling an impartial, non-technical story of heating and the greater indoor comfort to be derived from installation of central heating plants and central heating systems automatically-fired. It is expected this booklet will be ready for distribution at the special summer meeting.

Laclede Cooperative Plan for Appliance Sales

The Laclede Gas Light Company, St. Louis, Mo., has inaugurated a comprehensive sales training program which will open the door to more sales and greater profits for Saint Louis gas appliance dealers, as well as promote the idea that when Mr. and Mrs. America do set out to do their peacetime buying the four gas services will top their "Must Have" items—they will accept no substitutes!

Of the 206,800 families in Saint Louis who use gas for cooking, 60 per cent or 124,080 have gas ranges more than ten years old—veterans of the prewar era waiting to be replaced. These 124,080 old ranges in Laclede's customers' homes have created the biggest appliances profit market in history.

It is estimated that there are 19,000 families who want gas refrigerators. Add to this number those who have expressed no preference, and the market could be conservatively estimated at 25,000 sales.

The trend of automatic water heaters has improved steadily since 1930. But they are still quite limited in their use. Only 16 per cent of the water heaters now in St. Louis homes are automatic.

By authoritative survey it is a known fact that gas is the preferred fuel for postwar heating.

Laclede Gas Light Company Announces Appointments

C. E. Schoene, formerly superintendent of Distribution for the Laclede Gas Light Company has been appointed Chief Engineer. Schoene, a graduate of the University of Kentucky, came to Laclede in May 1913 to work on plant engineering and design.

Other changes of the Laclede organization were announced as follows by Alfred Hirsh, vice president of the gas company; C. H. Wiley, Superintendent Distribution; H. M. Gerken, Superintendent, Customers' Installation Department; J. D. Sowash, Assistant Superintendent, Customers' Installation Department; P. J. Hennelly, Superintendent, Street Department; F. A. Horr, Superintendent, Water Gas Manufacture; Dave Turk, Superintendent, Holder Stations; G. Louis Marting, Superintendent, Stores; and E. B. Heath, Special Assistant to Superintendent, Distribution.

Propane-Air Gas Plant for Sarasota, Florida

A contract has been awarded to Stacey **Dresser** Engineering of Cleveland, Ohio Division of Stacey Bros. Gas Construction Company, of Cincinnati, Ohio, for the design and installation of a propane-air gas plant at Sarasota Florida for Southern Gas and Electric Corp.

This plant will produce 550,000 standard cubic feet per day of 1,000 BTU propane-air gas at 25 PSIG. It will be designed for a wide range of 5—100% operation to meet local conditions.

Complete unloading and liquefied propane storage facilities will also be provided. Three 30,000 gallon capacity propane storage tanks will be installed. The generating equipment will include a BTU recorder and controller.

Consumers Power Co. Sells Alpena Holdings

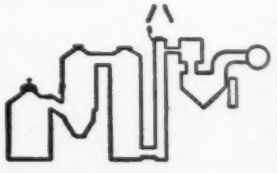
Sale of the gas plant and distribution system in Alpena, Mich., to the Alpena Gas Company has been announced by Vice President and General Manager D. E. Karn.

The Alpena Gas Company is a new company. Horace C. Ross, formerly industrial gas engineer for Consumers in Flint, is president, and Charles E. Disert, former gas engineer in the Lansing and Owosso divisions, is secretary-treasurer.

There are about 1,600 gas customers in Alpena. The community is distant from Consumers Power Company's other gas operations, and electric service is supplied by another company.

Chas. A. Barthold Retires

Charles A. Barthold, gas production superintendent, Kalamazoo Division, Consumers Power Co., retired June 30 after 41 years of service with the Company. He had been in the gas business more than 45 years, having started with the Grand Rapids Gas Light Company at Grand Rapids Jan. 2, 1900. He resigned as assistant superintendent of this company to become superintendent of gas production for the Kalamazoo Gas Company, March 1, 1905.

SEMET-SOLVAY
ENGINEERING CORPORATION
40 RECTOR ST. • NEW YORK 6, N.Y.
WE SELL SOLUTIONS TO GAS PROBLEMS

• BLUE GAS PLANTS
• WATER GAS MACHINES
• WASHER COOLERS
• CHARGING MACHINES
• GAS PURIFIERS
• CONDENSERS
• WASTE HEAT BOILERS
• PRODUCER GAS PLANTS

CLEVELAND
"A" TYPE METERS
"B" TYPE METERS
DIAPHRAGMS
Cleveland Gas Meter Co.
ESTABLISHED 1875
2009 Rockwell Ave., Cleveland 14, O. Phone CHerry 2351

Cooperative Insurance for Dealers

The Cooperating Dealer Appliance Plan of Consolidated Edison Company of New York, Inc., was amended July 10th, so that group life insurance will be made available to the individual dealers and their employes, Brigadier General Ephraim F. Jeffe, vice-president in charge of sales, has announced.

Dealers who cooperate with Consolidated Edison in the sale of approved gas and electric appliances and equipment, employ an average of three persons each, General Jeffe estimated. Normally, a minimum of 50 employes is required before an employer can provide them with the benefits of group insurance. General Jeffe pointed out that the low cost policies would permit dealers to offer their workers security which would serve as an added incentive to stay on the job and would improve employer-employe relations.

There are 757 cooperating dealers throughout the area in the city served by Consolidated Edison, and more than half of them have already indicated informally their approval of this plan of life insurance protection for their employes. The group life insurance program will be administered by a board of three trustees elected from among the cooperating appliance dealers by the dealers themselves. Nominations for this board are now being sought from the elected dealers' representatives who administer operation of the general appliance plan.

Simplified Practice Recommendation Brass or Bronze Valves

Printed copies of Simplified Practice Recommendation R183-46, Brass or Bronze Valves, are now available, according to an announcement of the Diviison of Simplified Practice of the National Bureau of Standards.

This recommendation applies to gate, globe, angle and check valves made of brass or bronze. For each of these kinds and types of valve it gives a simplified list of sizes and corresponding service ratings. The primary ratings range from 100 to 350 pounds per square inch. Water, oil and gas ratings, of 1000 and 2000 pounds and higher, together with the size range for certain kinds of these valves are included. It will be effective from September 1, 1946.

Copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 5 cents each. A discount of 25 percent is available on orders of 100 or more copies.

Robins Philadelphia Office Moves

Robins Conveyors Inc., Passaic, New Jersey, manufacturers of materials handling machinery announces that its Philadelphia office, formerly at 12 South 12th Street, will be consolidated with that of its parent organization, Hewitt-Robins Incorporated at 401 North Broad Street, Philadelphia 8, Pennsylvania, effective September 1st.

4th National Chemical Exposition

New discoveries, new ideas, new applications and new developments in industrial chemistry will be epitomized in an exhibit appropriately styled "The Chemical Trail Blazers," which will be a feature display at the Fourth National Chemical Exposition to be held September 10 to 14 at the Coliseum in Chicago.

The exhibit will be a major development of a comparatively small collection of sketches, panels and specimens shown under the same title at the last National Chemical Show in the same building in 1944. It will be presented on a more elaborate, more comprehensive and broader scale this year and will occupy infinitely more space.

It is designed to be of interest to the thousands of chemists, scientists and others who will attend the national convention of the American Chemical Society to be held simultaneously and with which the chemical show is closely integrated this year. As heretofore the exposition is sponsored by the Chicago Section of the A. C. S.

New Home Service Directors

W. L. Hutcheson, sales manager of The Manufacturers Light & Heat Co., Pittsburg, Pa., has announced that three new home service directors are now on the staff of the natural gas company and its affiliated companies:

Miss Wanda M. Ewing at Wheeling, for the Natural Gas Co. of W. Va. Miss Evelyn M. Porter for Manufacturers' in the Uniontown, Pa., area and Miss Helen Wilcox in Binghamton, N. Y., for Binghamton Gas Works.

Miss Ewing has been teaching home economics for several years in Pennsylvania and West Virginia Schools. Miss Porter was formerly a dietician in the Chambersburg, Pa. hospital. Miss Wilcox has been assistant home service director in Binghamton.

All three are reporting to Miss Flora G. Dowler, home service supervisor of the affiliated natural gas companies.

Floyd C. Brown President of Natural Gas Pipeline

Floyd C. Brown, vice-president and general manager of Natural Gas Pipeline Company of America since its organization, has been elected president, succeeding W. Alton Jones, who will serve as chairman of the board. Mr. Brown, according to the company's recent announcement, will continue his duties as general manager. He has also been elected president of the Texoma Natural Gas Company and the Quadrangle Gas Company.

A graduate of Leland Stanford University, Mr. Brown joined the Empire Companies organization in 1917 and advanced rapidly through posts of engineering responsibility to become manager of the Empire Pipeline Company and chief engineer of Empire Companies in 1921. In 1923 he became assistant general manager of the Empire Companies, and in 1926 was elected vice-president.

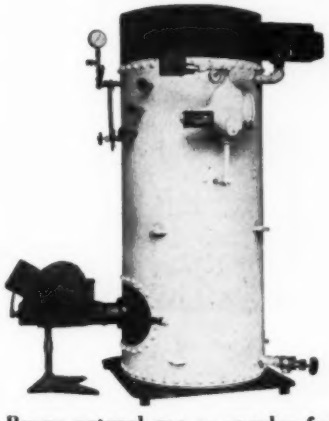
So. California Meter Assn.

The July bulletin of this Association states that the membership numbered 329 on June 30th, the end of the fiscal year.

Following is the roster of officers for the year 1946-47.

President, Lee Cheever, Southern Counties Gas Co.; *Vice-President,* C. G. Cortelyou, General Petroleum Corp.; *Secretary-Treasurer,* Geo. H. Forster, Jr., The Texas Company; *Auditor,* F. E. McAllister, Southern California Gas Co.; *Past President,* C. L. Hutchings, Tide-Water Associated Oil Co.

LATTNER
GAS — OIL BOILER
3 HP to 35 HP.



Burns natural gas or regular furnace oils with equal efficiency using same burner.

P. M. Lattner Mfg. Company
Cedar Rapids, Iowa

AN EDUCATIONAL PRIZE-PACKAGE!

The "Service of Selling" Series of Sales Training Texts

On all sides, merchandisers are busy preparing for the highly competitive days to come. Sales training programs are a MUST with all alert organizations. Many are developing their programs around the newly-published "Service of Selling" salesman training books which were expressly written to promote appliance selling. You can't afford to delay. Order now. Set of 3 volumes, clothbound, only $4.00.

The Cleveland Heater Co.
2310 Superior Avenue
Cleveland 14, Ohio

"Bill" Mastin Returns to Robertshaw Company

William D. Mastin returns to Robertshaw Thermostat Company as southern representative. Bill Mastin has had colorful and exciting experiences during his 55 months in uniform. As a Corps of Engineers Reserve Officer he was called to active duty for one year with the Air Corps and sent to Maxwell Field, Alabama. This was a long "one year" as it began in 1941 and lasted into 1946. While at Maxwell Field he met and served as guide for many distinguished visitors, including General George C. Marshall, Mr. Anthony Eden, Field Marshall Sir John

W. D. Mastin

Dill and lesser lights. As Engineering Officer, he was responsible for the maintenance and repair of training planes and also B-24's in flying schools there. He survived several airplane crashes and other exciting episodes.

During his 28 months foreign duty in the China - Burma - India theater, he saw many strange sights and met some military leaders renowned for their feats in the war. Among them were Lord Louis Mountbatten and Colonel Phil Cochran. As chief of production of the Bengal Air Depot in Calcutta he survived the headaches of terrific heat, high humidity and teaching airplane mechanics to Indian and Chinese labor. He held the rank of Lt. Colonel when he was released from active duty.

One of the more pleasant phases of his India experience who to meet and fall in love with an army nurse in Calcutta whom he married the day after his return to the United States. We know his many friends and customers will be glad to greet him and wish him happy landings on his return to civilian life.

Moore Corp. Reorganizes

Reorganization of the executive staff of the Moore Corporation, Joliet, Ill., has been announced by the Conlon Corporation, Chicago, which bought the Moore concern several months ago.

The Moore staff as now constituted includes Harry T. Worthington, vice-president and general manager: John M. Foxx, vice president in charge of sales, and Orville E. Oesterle, for twenty years with the Florence Stove Company, Kankakee, Ill., general factory superintendent. W. A. Stuckey continues as chief engineer and F. E. Wright, in his forty-first year with Moore, as secretary. The concerns will operate as separate units, Conlon continuing under I. N. Merritt as vice-president and general manager. Bernard J. Hank, head of Conlon, becomes president of Moore and continues as its chairman of the board and treasurer.

Titan Valve Co. Elects Mrs. Bentley President

At a Director's Meeting of The Titan Valve and Manufacturing Company, of Cleveland, Ohio, Mrs. Edith M. Bentley was elected President to fill the office of her deceased husband, William T. Bentley. Active management of the company will be in the hands of Frank A. Onda and Taylor G. Nelson.

Gar Wood Buys Bendix Plant

Gar Wood Industries, Inc., has expanded its manufacturing facilities by purchasing from the War Assets Administration the former Bendix plant in Wayne, Michigan, it has been announced by Charles W. Perelle, president.

The company will transfer all its Detroit operations to the new site with the exception of its body plant.

L. A. Greer Retires After 30 Years Service in Gas Industry

L. G. Greer, who has built gas plants and pipe lines for nearly a third of a century in many parts of the United States, has been retired with life income by United Gas Corporation after long service with that firm, J. V. Strange, vice president and general manager announced recently.

Mr. Greer for many years was maintenance superintendent in charge of United Gas properties in Texas, Louisiana and Mississippi. His present position is construction superintendent. He is being retired upon reaching the age of 65, in accordance with the company's recently adopted retirement plan, Mr. Strange said.

He is the second United Gas officer in Houston to be retired this year. K. L. Simons, manager of the Houston division, retired in January, after 44 years in the gas industry.

The veteran construction man is known throughout the Southwest. He began his career in the gas industry in 1916, working for the Atlanta Gas Light Company and the El Paso Gas Company in the days when they manufactured cooking and lighting gas from coal. When distribution of natural gas began, he superintended building of pipelines throughout the Southwest.

He went to work for United Gas in Lake Charles in 1931 and was transferred to the Houston general office a year later as distribution inspector. He was promoted to maintenance superintendent in January, 1938, and to construction superintendent in December, 1945.

Fayville-Levally to Represent Hammond in Chicago

The appointment of the Faville-Levally Corporation, 105 W. Adams St., Chicago 3, Ill., as their Chicago District representative, has been announced by the Hammond Iron Works, Warren, Pa.

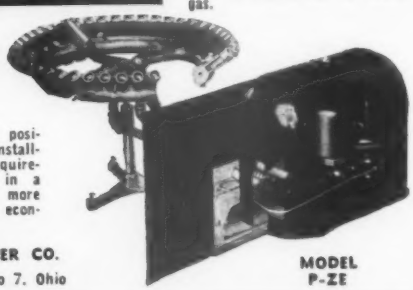
The Faville - Levally Corporation will represent the full line of Hammond services including the designing, fabrication and erection of tanks of cone roof, breather, sphere, spheroid, floating roof, and vapor-lift design and also gas holders.

COLUMBIA CONVERSION GAS BURNERS

FOR WARM AIR FURNACES AND HOT WATER, STEAM AND VAPOR BOILERS

NU-TYPE ductless burner that performs perfectly with natural, manufactured or mixed gas.

Popular with scores of utilities and thousands of home owners. Simplifies problem of converting to gas Tamperproof controls, quiet operation, high efficiency, positive performance. Easily installed. Negligible service requirements. Each installation in a neighborhood sells many more because of its simplicity, economy and ease of control.



MODEL P-ZE

COLUMBIA BURNER CO.
729 Ewing St., Toledo 7, Ohio

"JOURNAL" GAS FLOW COMPUTERS

High Pressure
RANGE:
Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe—Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in., 1-500
Sum of Absolute Pressures—Lbs. per sq. in., 2000-20
Specific Gravity—1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

Low Pressure
RANGE:
Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter—¾" to 48" (including standard and actual weight up to 4")
Pressure Loss—Inches .01-10
Length of Pipe—Feet 30-30,000
Specific Gravity—1.5-.35
Constants—1400-1000

Made of durable celluloid, encased in a convenient leatherette cover with complete instructions. Actual size 6¾ x 7½

$4.00 Each Postpaid

American Gas Journal
53 Park Place, New York 17

Gordon Rieley Appointed G.M. of Bryant Heater Plant

Lyle C. Harvey, president of The Bryant Heater Company, Cleveland, announces the appointment of Gordon Rieley, vice president of the company, as general manager of the new Bryant plant now being completed in Tyler, Texas.

Rieley, until recently on leave of absence while serving as Divisional Director of the New Building Section of the Office of Price Administration, assumed his new duties July 25.

Gordon Rieley

Production in the new Bryant Texas plant, for which ground was broken in October, 1945, will begin in August, with gas-fired hot water heaters scheduled as the initial item of production. Manufacture of space heaters and other gas appliances will follow to complete the line of products assigned to the new plant, which contains 105,000 square feet of floor space.

Mr. Rieley has been associated with Bryant for the past twelve years, where he has specialized in market research and analytical phases of Bryant sales and production. Prior to his association with the company, he was a market analyst and sales consultant. A native of Cleveland, he is chairman of the house heating division of the Gas Appliance Manufacturers Association, as well as being active in several housing and construction committees of the Cleveland Chamber of Commerce.

Caloric Stove Co. Announces Change in Title

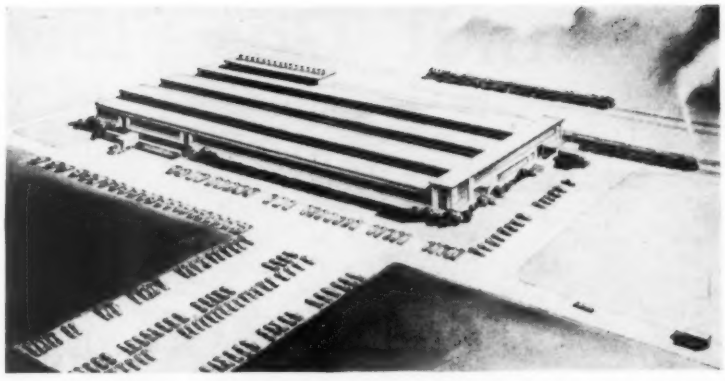
The Caloric Stove Corporation has acquired the entire business and properties of the Caloric Gas Stove Works, Philadelphia, Pa. The business was started in 1890 by Samuel Klein.

The Board of Directors of the Caloric Stove Corporation has elected the following officers:

Nathan Klein, president; Julius Klein, vice president; Gustav Klein, treasurer, and David F. Kohler, secretary.

"No change has been made in the executive personnel," Nathan Klein said. "The new corporation will continue the business under the same long established principles and will carry on production of the full Caloric line of gas ranges."

Headquarters is in the Widener Building, Philadelphia, Pa.



Architect's drawing of new Bryant plant at Tyler, Texas, now nearing completion.

Girdler Corporation Makes Sales Appointments

The Gas Processes Division of The Girdler Corporation, has announced the opening of a southwestern office at 601 Central Building, Tulsa, Oklahoma. The southwestern representative of Gas Processes is J. D. Gordon, formerly the Division's Eastern representative.

Succeeding Mr. Gordon as eastern representative is D. Kenneth Finlayson, whose headquarters are at 150 Broadway, New York.

Security Engineering Co. Elects Officers

A change of officers has been announced by Security Engineering Co., Inc., Whittier, Calif., one of the Dresser Industries. W. E. Sievers, former President, has been elected Chairman of the Board and O. Hammer has been elected President and General Manager. "Ott" Hammer has been associated with Security since its inception in 1931 when the Sievers Reamer was first introduced.

Centrifugal Pumps: Ingersoll-Rand Company has issued a 2-color, 16-page catalog entitled, "Two-Stage Centrifugal Pumps," (bulletin 7062), that will interest many fields of industry. Designated Class GT, the pumps described are offered for general use in many industrial services including feed-water service for units designed to operate at modern boiler pressures from 100 to 300 lb.

These pumps are 2-stage, ball-bearing motor, turbine, and engine speeds; they are available in capacities up to 2200 gpm for discharge heads up to 1050 ft. (450 lb. per sq. in.).

The catalog is well illustrated with cutaway views, types of drive, and typical installations; there are tables of performance, dimensions and pipe friction, and a typical pumping problem is worked out in detail.

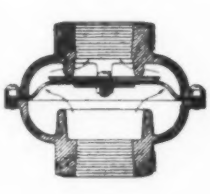
Copy on request to Ingersoll-Rand Company, 11 Broadway, New York 4, N. Y., or any of its branches.

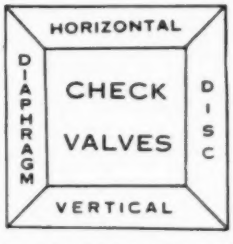
IRON OXIDE

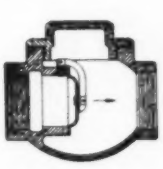
I can supply you with the Crude Bog Iron Ore, used in Coke and Gas plant, as purifier.

WILLIAM VENNES
259 - 6th Avenue
Grand'Mere, Que.
Canada

Pressure Controls for Gas and Air

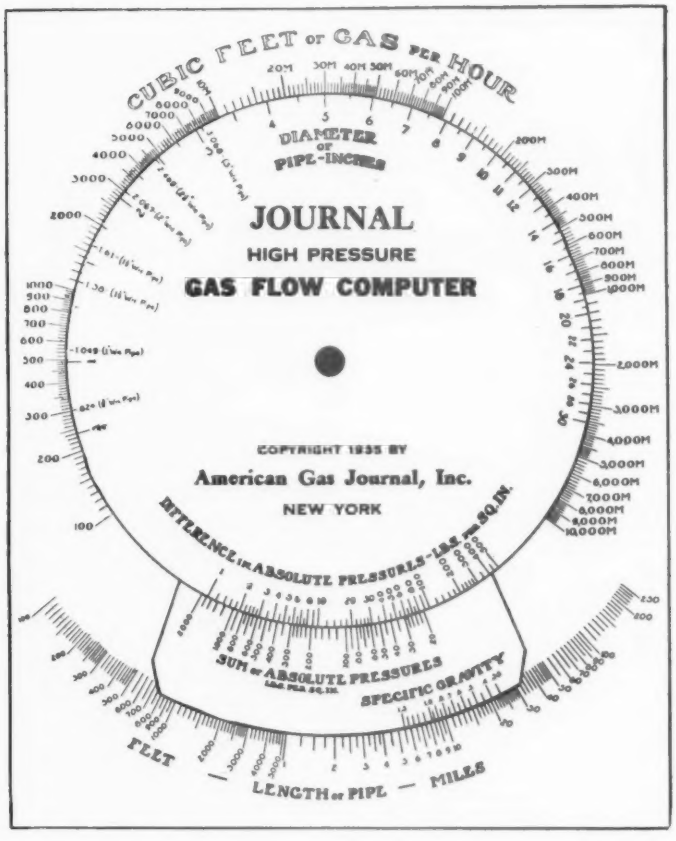






NORWALK VALVE COMPANY
Division of ALLIED CONTROL VALVE CO., *Inc.*
33 Railroad Ave. South Norwalk, Conn.

"Journal" Gas Flow Computers



These Improved Gas Flow Computers are available in durable celluloid, encased in a convenient leatherette cover with complete instructions.

Actual Size 6¼ x 7½

☆

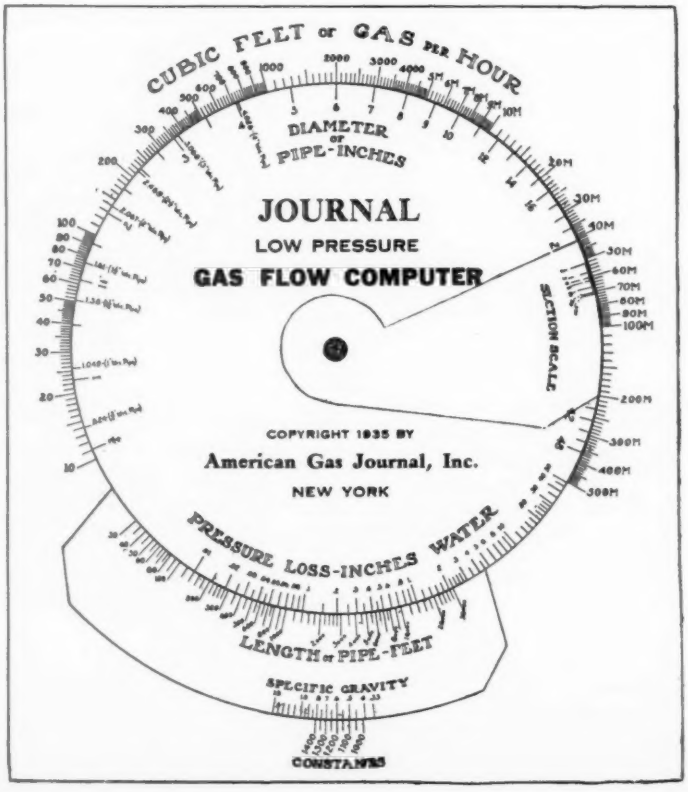
High Pressure Computer Range:

Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in. 1-500
Sum of Absolute Pressures—Lbs. per sq. in. 2000-20
Specific Gravity 1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

Low Pressure Computer Range:

Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter ¾" to 48" (including standard and actual weight up to 4")
Pressure Loss Inches .01-10.
Length of Pipe—Feet 30-30,000
Specific Gravity 1.5-.35
Constants 1400-1000

Price $4.00 Each, Postage Prepaid



AMERICAN GAS JOURNAL
53 Park Place, New York 7, N. Y.

Please enter our order for Computers as follows at $4.00 each, postage prepaid.

....HIGH Pressure Computer

....LOW Pressure Computer

NAME .....

ADDRESS .....

INDEX TO ADVERTISERS

American Meter Co. 10
American Radiator & Standard Sanitary Corp. —
American Stove Co. ..... —
Allied Control Valve Co. 47
Autogas Company ..... —

Blaw-Knox Company 6
Bryant Heater Co. ..... —

Cast Iron Pipe Research Ass'n. The 26-27
Cleveland Gas Meter Co. 44
Cleveland Heater Co. 45
Cleveland Trencher Co. ..... —
Coal Carbonizing Co. 18
Columbia Burner Co. 46
Connolly Iron Sponge & Governor Co. 30
Cooper-Bessemer Corporation ..... —
Cribben & Sexton Co. 19
Cruse-Kemper Co. 24

Detroit-Michigan Stove Co. ..... —
Dresser Industries ..... —
Dresser Mfg. Div., Dresser Industries 36

Gas Machinery Co. 30
Gas Purifying Materials Co. 18
General Coal Co. ..... —
General Gas Light Co. ..... —

Harper-Wyman Co. 8
Inland Manufacturing Co. 30

Lambert Meter Co., Inc. 18
Lattner Mfg. Co., P. M. 45
Lincoln Electric Co. ..... —

Metric Metal Works 10

Norton Company 51
Norwalk Valve Division 47

Pacific Gas Corp. ..... —
Pittsburgh Equitable Meter Division, Rockwell Manufacturing Co. ..... —

Republic Flow Meters ..... —
Reynolds Gas Regulator Co. 30
Roberts-Gordon Appliance Corp. 2
Robertshaw Thermostat Co. ..... Front Cover
Roper Corp., Geo. D. ..... —
Ruud Manufacturing Co. ..... —

Safety Gas Main Stopper Co. 49
Semet-Solvay Engineering Corp. 44
Sellers Engineering Corp. ..... —
Servel, Inc. 4-5
Sharples Corporation 3
Skinner Co., M. B. ..... —
Smith Corporation, A. O. ..... —
Sprague Meter Co. ..... Back Cover
Stacey Bros., Div. Dresser Industries 7
Stacey Manufacturing Co. 33
Superior Meter Co. 37
Syntron Co. ..... —

United Engineers & Constructors, Inc. ..... —

Vulcan Proofing Co. 20

WANTED

Gas Sales Engineer preferably with Gas Utility Experience. For sales and design of installations GAS-AIR Propane-Air Plants to Utility and Industry. Equipment now in thirty-one states. Bright future for aggressive man. Suitable salary and expenses.

Pacific Gas Corporation
630 Fifth Avenue
New York, N. Y.

WANTED TO BUY

Wanted: Domestic Gas Meters, Any Kind.

Illinois Electric & Gas Company
Murphysboro, Illinois

L. P. GAS MANAGER

MANAGER WANTED—To manage gas utility and bottled gas operation for aggressive company. Salary and commission basis. Address Box 154 c/o American Gas Journal, 53 Park Place, New York City 7, N. Y.

Compressor Units. The G.M.X. Compressor Units built by Cooper-Bessemer Corp., Mount Vernon, Ohio, are fully described and illustrated in detail in their Bulletin No. 338. Diagram in color of cross section and details of individual parts are featured along with specifications.

Pipe Coating. Bitumastic Bulletin No. 44 of Wailes, Dove-Hermiston, Westfield, N. J., describes and illustrates the coating operation with Bitumastic Enamel on 12, 16 and 20 inch pipe lines of United Gas Pipe Line Company in Texas and Louisiana. Also describes a 24 inch welded line using traveling equipment for cleaning, priming, coating and wrapping.

GAS ENGINEER WANTED

Gas Utilization Engineer—graduate mechanical engineer needed by rapidly growing midwest gas utility company in high type suburban area. Must have experience in engineering work in connection with the utilization of gas by residential, heating, commercial and industrial customers. Have ability to handle heating and air conditioning problems, industrial gas engineering problems and in securing proper installation of gas equipment. Please forward resume of educational background, experience, salary expected and enclose a recent photograph—Apply Box 153 c/o American Gas Journal, 53 Park Place, New York 7, N. Y.

The Reliable Shut-Off for Street Mains

THE GOODMAN STOPPER

Now has the "Z" handle for easy manipulation. When locked in place it holds. Stopper cannot slip. Gas cannot pass. Adjusted in 30 seconds.

Ask for circulars on this and other distribution equipment.

Nearly a half century of service to the Gas Industry.

Safety Gas Main Stopper Co.
523 Atlantic Avenue, Brooklyn, New York

Manufactured Gas

(Continued from page 25)

The manufactured gas for the future is a question that has to be carefully studied by a thoroughly competent and experienced gas engineer for each individual city as there are so many variable factors entering into each separate operation that it is impossible to prescribe the best procedure for all undertakings.

Many developments in gas manufacture now discussed are only of academic interest and require years of trial before coming into practical use. We must, therefore, look to our present established methods and all the improvements and modifications which can be made thereon for immediate and future economies.

Most of the manufactured city gas of today is carburetted water gas, and the choice of various generator fuels, oil gas, L-P gases, natural gas and enriching oils, the use of great blower capacity, exhaust process steam, waste heat boilers, mechanical grates, automatic controls and generator walls which do not hold clinkers, will, if properly applied to suit the local conditions, increase generating capacity, improve the quality and reduce the cost of the gas made.

Delivered before the Meeting of the "Gas Meters Association of Florida-Georgia" in Savannah, Ga.

Appalachian Gas Measurement Short Course for 1946

Scheduled for September 9 to 11th, this sixth annual gas measurement short course sponsored by West Virginia University School of Mines is to be held at the University in the Mineral Industries building at Morgantown. The primary purpose of the school is to provide an opportunity for persons interested in the quantity measurement and pressure regulation of gas to obtain information on the repair and operation of equipment used for that purpose and to acquaint them with the latest developments in the gas measurement and regulation field. The program committee has limited the instructional material and demonstrations to the fields of gas measurement and pressure regulation giving special consideration to the prevailing conditions and featuring those phases of metering and regulation which are of paramount interest at the present time. This is the first gas measurement school since 1941 in which exhibits of equipment have been provided.

The enrollment fee is $2.50 and includes all charges for attending the course with the exception of the banquet. Banquet tickets are priced at $2.50 and may be purchased at the registration desk.

Information on housing and registration and a program of the meeting may be had through Charles T. Holland, Chairman, West Virginia University, Morgantown, W. Va.

Oklahoma Utilities Assn.

The annual Fall Meeting of the Gas Division of Oklahoma Utilities Association will be held at the Biltmore Hotel, Oklahoma City on September 20th. C. B. Day, division manager of Consolidated Gas Utilities Corporation is chairman of the Gas Division of the Association. Address Box 640, Blackwell, Okla.

R. W. Stafford Establishes New Company

Announcement has been made that R. W. Stafford, formerly Chief Engineer of Connelly Iron Sponge & Governor Co., has resigned to organize a new company which will engage in engineering and construction work in the gas industry. Mr. Stafford was associated with the Connelly concern for more than eight years and is well known throughout the gas industry for his knowledge of production and distribution engineering problems. He is also Vice President and Director of The Stafford Company of Colorado, Reba Sherman Building Corporation, Dr. Pierre Chemical Company and Partola Products Company of Chicago.

The new company is now incorporated under the name of The R. W. Stafford Company with offices at 162 N. Franklin St., Chicago, and will provide a broad consulting engineering service specializing in the liquefied petroleum field and production, distribution and construction in the manufactured gas industry.

Natural Gas Reserves

Dr. E. DeGolyer, petroleum geologist of Dallas testified before the Federal Power Commission hearing in Washington that the proved recoverable gas reserve on January 1, 1946, was in excess of 144 trillion cubic feet, in a general consideration of only those gas fields which have reserves of twenty billion cubic feet or more, and that developments during 1945 serve to support the opinion that natural gas reserves will continue to increase for a considerable time in the future.

Eighty per cent of the gas reserves of the nation are located in something less than 2 per cent of the producing fields. Approximately 43 per cent of the gas is in five fields or areas. Ten fields contain 53.1 per cent; twenty fields, 61.6 per cent; and one hundred fields, 81.6 per cent.

Until quite recently, the oil industry was little concerned with gas. In the past, many gas shows were plugged and abandoned or neglected because of inaccessibility to market or the prevailing low prices paid for gas. This practice is not likely to continue in the future.

If gas is encountered, it will be exploited because additional markets and uses for gas have been and will continue to be developed. If there is a steadily increasing market demand for gas, underground reserves will acquire values which they have not previously had and exploration for gas itself will be carried on in favorable areas instead of in a few localities where additional supplies of gas are required.

Deeper drilling is one of the most important sources for the finding of additional oil and gas, both in known oil fields and in areas which have already been prospected to some degree, Dr. DeGolyer explained.

Drilling to greater depths during the past ten years has resulted in the discovery of a greater proportion of gas to oil than previously. It appears likely that this proportion will continue to increase with continued drilling to even greater depths.

After a discussion of conservation measures, Dr. DeGolyer concluded that with waste of gas being diminished and with the material increase in number and volume of natural gas discoveries, the natural gas industry would be capable of supplying the demands of the expanding market during the foreseeable future.

Distribution and Plant Expansion in Br. Columbia

Construction has commenced on a new high pressure gas system for the B. C. Electric Railway Company. The new main will be 9300 feet in length and 17 inches in diameter. Installation will be completed by fall at a cost of $125,000.

The main will enable a high pressure system of the company to be extended through the Kitsilano and Point Grey areas of Vancouver and will equalize pressure to stores and dwellings in both neighborhoods.

FRANK W. SMITH

Frank W. Smith, former president of Consolidated Edison Company of New York, Inc., who retired from that post in 1937, died on July 22nd following a lingering illness. He was 79 years old.

A trustee of Consolidated Edison Company from 1932 to 1945, Mr. Smith served at various times as president of The New York Edison, The United Electric Light and Power, Brooklyn Edison, New York and Queens Electric Light and Power and the Consolidated Edison Companies. He had been active in the electric industry for fifty-seven years.

HARRY J. DILLON

Harry J. Dillon, sixty-nine, a vice-president and director of the Brooklyn Borough Gas Company, died July 21st after a long illness in Dobbs Ferry at the home of his daughter, Mrs. Walter Hardy.

Mr. Dillon joined the gas company as a service clerk in 1904. He was hired by his sister, Miss Mary E. Dillon, then an office worker and now president of the company.

JOHN H. DOERRES

John H. Doerres, chief engineer of The Laclede Gas Light Company, St. Louis, died suddenly of a heart attack on July 2nd. Mr. Doerres was made chief engineer of the gas company in September 1945 upon the retirement of H. C. Wehnert. Prior to that he had been superintendent of the By-Product Coke Oven Plant of the company.

Mr. Doerres was a graduate of Ohio State University and was first employed by Laclede in March 1913. He helped with the design and construction of the Coke Oven Plant, which was completed in 1915.

How CRYSTOLON BRICK can help operators of Water Gas Plants

Case Histories from Our Files

"It is extremely doubtful", writes a superintendent, "whether our plant* could have continuously supplied gas through (wartime) peak operating periods had not the generator been lined with CRYSTOLON (SiC) brick - - - the brick are still in service after 22,362 hours of actual gas-making time - - - We believe that cleaning time for a gang of six men has been reduced 1½ hours per day. This saving by itself would pay for a CRYSTOLON lining during the course of one year's operation."

* Name of plant on request

NORTON COMPANY
WORCESTER 6, MASS.

Norton Refractories

Another Step Forward

in the Modernization of

SPRAGUE GAS METERS

Now appearing

in its Streamline Case

THE SPRAGUE METER CO. BRIDGEPORT, CONN

DAVENPORT IOWA • LOS ANGELES, CALIF. • HOUSTON, TEXAS • SAN FRANCISCO, CAL